

Railway Age

WITH WHICH IS INCORPORATED THE RAILWAY REVIEW

FIRST HALF OF 1927—No. 5

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SEVENTY-SECOND YEAR



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Railway Age

Vol. 82 January 29, 1927 No. 5



Boston & Maine "Minute Man" Passing Clematis Brook near Waltham, Mass.

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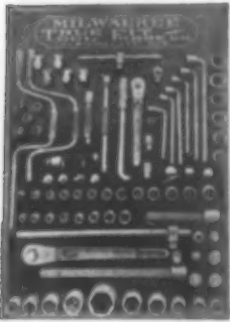
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Railway Age

Vol. 82, No. 5

January 29, 1927

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Is Executive Talent Obtainable from the Mechanical Department?

THE progress report presented by the sub-committee on professional service of the Railroad Division at the December, 1926, meeting of the American Society of Mechanical Engineers, has been the cause of several rather caustic criticisms on the part of mechanical department officers, of the executives to whom they report. One of the facts brought out in this report, an abstract of which was published in the December 11, 1926, issue of the *Railway Age*, was that only three presidents of Class I railroads out of a total of 79, were "graduates" of the mechanical department. These figures, of course, represent a rather poor showing for the mechanical department as compared with other departments. But summarizing the various points brought out by a number of critics, the mechanical department officer seems to feel that the average executive does not show the same interest in mechanical department problems that he does in problems pertaining to the work of other departments. The report shows that the railway supply companies have found plenty of executive timber in the ranks of the mechanical department, indicating that railroads may be overlooking talent in that department.

Car Interchange Problems

A CONFERENCE of 15 chief interchange car inspectors which was held at Chicago last week gives promise of more far reaching results than would usually be expected from an informal gathering of so small a group of railroad men. A report of the action taken appears on another page of this issue and from all indications the two regular meetings which the chief inspectors propose to hold annually will go far to reconcile differences of opinion which tend to prevent the most efficient operation. Only about one-half of the 25 or 30 chief inspectors in the country were present at the meeting and, in view of the potential benefits, it would seem desirable for railroads to encourage a large attendance of chief inspectors representing them. The meetings will be devoted exclusively to informal consideration of car interchange bureau problems and should do much to eliminate conflicting decisions and promote more expeditious and economical interchange of freight cars. An illustration of the more or less general improvement which has already taken place in car interchange methods at important terminals throughout the country is afforded by the record of the Chicago Car Interchange Bureau. In a period of two years, this bureau, by carrying out the broad policy of unselfishness and consideration of the best interests of the railroads as a whole advocated by the General Managers' Association of Chicago, has reduced the number of transferred loads from 11,938 to 3,047, with an annual saving to the member lines, based on a transfer cost of \$25 per car, of at least \$222,275.

The Return of the Railroad "Fan"

EVERY sport has its "fans" which supply the money and the enthusiasm to keep the game alive. But the fan is not confined to the sports. For instance, we have the movie fan, the radio fan, the motor car fan and, indeed, a fan for almost every art or industry. He is a valuable asset to the enterprise which draws his interest. Indeed to some of them, the sports and the movies for instance, he is the main support which keeps the business going. Elsewhere, where his services are not absolutely essential, they are none the less valuable. What of the railroad fan? His number years ago was legion, before the Railroad Administration completed the job of squeezing the individuality out of railroading. Now the careful observer can see that, with the revival of interest by the railroads in achieving attractive individuality, the railroad fan, having something again to interest him, is returning in increasing numbers. The fans make up a sympathetic audience, always ready to cheer at outstanding achievement. The more numerous they are, therefore, the simpler the public relations problem. How many people along the lines of your road, not on the railroad payroll, are nevertheless filled with interest at everything new your road does? How many get a thrill from the sight of one of your resplendent passenger trains and almost envy the man in uniform or the man at the throttle? The answers to these questions are a gauge of success in dealing with the public as human beings.

Appreciation of Train Control

THE use of automatic train stops may be quite definitely useful as a means of strengthening public confidence in your railroad even if the apparatus is never called upon to take the place of a disabled or neglectful engineman. The fourth section of the Twentieth Century Limited, the default of whose engineman caused the collision on the New York Central at Savannah, N. Y., on January 9 (reported January 15, page 284), was made up of cars destined for Boston, over the Boston & Albany; and a Boston newspaper very promptly called attention to the existence of automatic train control apparatus on the 200 miles of the last named road, observing that if the critical situation at Savannah had occurred east of Albany, no collision would have happened. And, says this comment, the achievement of the Boston & Albany "is as yet far too little known and realized by the public." In this connection it is of interest to observe that the recent exhibition of automatic train control on the Reading's Atlantic City line (noticed in the *Railway Age* of January 15) was reported in the newspapers with more intelligence and accuracy than has been customary with such difficult subjects. In the nature of the case the education of the public in this element of railroad safety will call for repeated and varied

explanations; for, like fire insurance, accident insurance and other things of that nature, an automatic train control system should, if managed in the most perfect way, tend to make itself unnecessary and invisible.

Selling Coal and Candy

AN important element in the successful merchandising of candy, cosmetics and other articles of commerce classified as luxuries, as well as of many food products, is the general fitness and all-around attractiveness of the package in which the goods are displayed and delivered to consumers. It has much to do with their popularity and quality rating in the minds of prospective purchasers. On the other hand, coal is sold by the ton and delivered in bulk; those intangible elements of personal taste, the successful appeal to which is connoted by the term "popularity," having little to do with its sale. The railroads have succeeded splendidly during the past six years in establishing a reputation for quality in their freight service. What they sell here is a bulk commodity. They have been much less successful in merchandising their passenger service, particularly their local passenger service, where competition with other transportation agencies is most severe. These other agencies—the privately owned automobile and the motor bus—are comparatively new but permanent competitors of the steam railway, and it is true that the business which once all went to the railroads will never all return to them. The encroachments of these agencies need not, however, be permitted to continue unresisted. What the local passenger buys from the railroad or from any other transportation agency is a highly personal service—just as personal as any luxury or necessity, his buying of which is influenced by the character of the package in which it is delivered to him. Perhaps less of the methods of the coal merchant and more of the methods of the producer of candy, cosmetics, or other competitive package goods, would be helpful in dealing with the local passenger service. That this distinction is thoroughly understood by the manufacturers and operators of buses is evident from the character of the exterior and interior decorations of buses and the arrangement, design and upholstery of seats. It is also being observed by a number of street and electric railways. An interesting and suggestive letter telling the experience of some of the electric railways in this respect will be found on the communications' page of this issue.

Marine Piling Problem Unsolved

PUBLICATION in a recent bulletin of the American Railway Engineering Association of a further progress report of the marine piling investigation again focuses attention on the unsolved problem of protecting timber submerged in sea water from the attacks of marine borers. The menace of these mollusks and crustacea has been one of long standing, but, as has been definitely shown, their activity in various quarters has greatly increased as the building of many wooden structures in seaboard waters has provided an abundance of favorable environment for their rapid propagation. Heavy impregnation of piling with creosote oil has long been recognized as a means of obtaining a considerable measure of protection, but the effectiveness of such protection is subjected to definite limitations by defects in plant and construction practices which are not readily overcome and the results have not always been all that

was expected. For this reason the problem has been subjected to protracted study and following the destruction of millions of dollars' worth of dock property in San Francisco Bay during the four years ending in 1921, these studies were given a marked impetus under the auspices of the Committee on Marine Piling Investigation organized early in 1922. These later studies have now been in progress for five years, during the course of which an enormous fund of information concerning the nature and life habits of the various forms of marine borers, manifold data on the effects of various toxic reagents and other scientific facts has been compiled, all of which, no doubt, will be of inestimable value to those who will continue this important investigation. But as far as having any immediate practical value to the builder of marine structures, this material would appear to be of benefit only in convincing him that there is at this time no better protection for wood piles than to have them subjected to heavy impregnations of creosote, carried out with a degree of refinement that will insure against the presence of areas of inadequately treated wood which have proved so vulnerable to early attack. It has taught him also the need of observing certain precautions in construction such as care against injury or the cutting of the treated timber and the necessity for avoiding the use of any untreated timber in contact with the impregnated material.

Depreciation Complexity

THE Interstate Commerce Commission's recent order with respect to depreciation charges, noticed in the *Railway Age* of December 4 and 11, is beginning to set the railroad world by the ears as its involved details are being read and understood. The commission's decision in the matter is a lengthy document of over 100 pages and is one of the most exhaustive treatments of the subject of depreciation written for some time. As one reads the decision he comes upon point after point of the most far-reaching importance and lays down the paper wondering if the commission could itself have had an adequate idea of the results of the order upon the railroad world.

There are so many important angles to the subject and so concise is the language of the decision that a book could be used to discuss adequately all of these angles and the commission's views relative to each.

The decision includes a lengthy discussion of the purpose of depreciation accounting, which is, to spread over the life of units of property the charge to operating expenses that otherwise would have to be made in a lump sum as a retirement charge when these units were removed from service. It gives arguments in favor of accounting for this service loss currently, in other words, in favor of depreciation accounting. The problem arises of ascertaining the values against which depreciation is to be charged; it is noted that the railroad accounts furnish no adequate record of property costs, but that this deficiency may be supplied from the figures made available by the federal valuation, and rules are accordingly supplied for the distribution of the investment accounts by classes of property. In another place, the straight line method of depreciation accounting is favored. The question of allocating depreciation charges to units of property as distinguished from groups of units is decided in favor of the group plan, the groups to conform to the primary accounts in the classification of investment in road and equipment.

One of the most far-reaching parts of the order re-

quires depreciation accounting on even such fixed property as rails, ballast, ties, etc. The decision admits that it is impossible to establish rates of depreciation that will suit all carriers, so the roads are allowed discretion with respect to this phase to the extent that they are to submit estimates of the percentages that should apply on the different classes of property after a check of which estimates the commission will prescribe such rates by temporary order.

Everybody who owns railroad securities will be particularly impressed by a requirement that the carriers, besides being required to institute depreciation accounting for the future along the lines outlined in the foregoing, must also set up reserves for accrued depreciation that has taken place in the past, but which has not hitherto been accounted for. All operating and maintenance officers will worry when they discover that they are required by one of the clauses of the order to state at the end of the year the amount of deferred maintenance, if any, on their properties. The estimate of the rates of depreciation mentioned above are to be filed with the commission not later than September 1, 1927, and the other features of the order are to be effective on January 1, 1928.

Any one who reads the foregoing will readily understand that the order is very involved, and that the carriers are going to be called upon to do much hard thinking about its effects and to spend much good, hard money in accounting expenses in putting the order into effect.

Agriculture, Industry and the Railways

TWENTY years ago the panic of 1907 awakened the nation to a realization that it had a currency problem that must be solved to prevent general disaster. The solution was provided by the passage of the Federal Reserve law. Soon the great congestions and car shortages of 1916 to 1920, and the experiment of government operation, with its evil results, awakened the public to the fact that the railroad problem had succeeded the currency problem as the gravest menace to America economic welfare. The Transportation Act of 1920 was passed, and under it great progress has been made toward solving the railroad problem. Now leaders of business and of public thought have become alive to the farm problem as the most pressing and serious with which the nation is at present confronted, and are joining in various movements to find and effect a solution of it.

Cause of the Problem

The existence of the farm problem cannot be denied by any intelligent and unprejudiced person, any more than the existence of the currency and railway problems could be denied in the past. Some say it is due to mistakes of the farmers, as others said of the railroad problem that it was due to mistakes of railway financiers and managers. Unquestionably there is an element of truth in this, but the fundamental cause of the problem is similar to that which created the railroad problem. The railroad problem was created mainly by increases in railway costs that were not offset by advances in rates. The farm problem is mainly due to a disparity that has prevailed almost continuously since 1920 between the prices of most of the things the farmer must buy and the prices he has been able to get for most of the things he produces.

The farm problem has more dynamite in it for the railways than any other industry. Not only does the

condition of agriculture affect traffic, but the farmer is prone to blame the railways more than any other industry for his plight, and he has a power, because railway rates are subject to regulation, to make his sentiment regarding them effective that he lacks to make it effective regarding prices of commodities. It is, therefore, vitally important to the railways that they get the point of view of the farmers as respects the relationship of the railways to the farm situation and problem, and participate with other interests in studying the farm problem and trying to solve it.

Farmers and Railways

Dwight N. Lewis, chairman of the Railroad Commission of Iowa, can qualify as an expert witness regarding sentiment in his territory. Recently he made an address on "The Other Fellow's Viewpoint" before the Western Railway Club in Chicago. We publish an abstract of it elsewhere because it seems pretty faithfully to present the attitude of farmers in a large part of the west.

The address, as an expression of "the other fellow's viewpoint," is as significant in what it omits as in what it includes. The railways were granted a large general advance in rates in 1920. Mr. Lewis intimates this was not opposed by the people of his territory, who saw the railways needed it. They could well afford to pay it at that time, because all commodity prices, including those of farm products, were then about 120 per cent higher than before the war. "Then it seemed to our people," Mr. Lewis continued, "that the railroad managers had an insatiable greed for more. When grain prices dropped and dropped, the railroads demanded an increase in their rates."

Farm Prices and Western Railway Rates

This is a misleading statement. The precipitous decline of prices occurred in 1921. At the beginning of 1922 the rates on grain were reduced 16 to 21 per cent, and on all other farm products 10 per cent. The average wholesale price of farm products was then only about 22 per cent higher than before the war. It soon began to advance, but it was not until April, 1925, that the western lines asked for an advance in rates. At that time the average wholesale price of farm products was 56 per cent higher, and the average rate per ton mile of the western lines only 38 per cent higher than before the war. The inclusion of these facts would have changed the picture drawn by Mr. Lewis. Unfortunately, since 1925, the average price of farm products has declined.

Mr. Lewis said: "If the railroads want to make a real contribution to good feeling they should announce a freight percentage decrease in the rates on all farm products for the next six months." This suggestion obviously is based on the assumption that the farmer pays the freight rates on his products. There are good economic reasons for believing that almost invariably the consumer pays the freight rates on farm and all other commodities, and that, therefore, a reduction of rates on farm products would be more likely to reduce the prices the consumer pays than to increase the prices the farmer gets. Suppose, however, the farmer would get an increase in his prices equal to the reduction in rates. Is there any good reason why the western railways alone should be asked to reduce what they charge him?

The farmer buys many things besides transportation—lumber, coal, clothing, agricultural implements, groceries, etc. His cost of transportation is only a small part of his total expense. Therefore, the proposed reduction of rates alone would save him relatively very little. Are the railway rates he is paying excessive in proportion to the prices he is paying for other things? The average wholesale price of farm products in November, 1926,

the latest month for which the official figure is available, was 35 per cent higher than before the war. The average rate per ton mile of the railways of western territory, where there is the most farm discontent, was 34 per cent higher. With a given amount of his products the farmer can buy more than 100 per cent as much transportation from the western railways as he could before the war. The average price of all commodities except farm products in November was 53 per cent higher than before the war. Therefore, with a given amount of his products the farmer can buy only 80 per cent as much of other commodities as he could before the war.

Why did not Mr. Lewis suggest that the manufacturers of the country and the merchants of Iowa should reduce the prices they are indirectly or directly charging the farmer for lumber, coal, clothing, groceries, etc.? The prices they are charging him, as the figures show, are relatively much higher than the rates the western railways are charging him. His aggregate buying from them is many times larger than from the railways. If they could put their prices on relatively the same basis as the freight rates of western railways—34 per cent above the pre-war level—the farmer's pre-war purchasing power, measured in comparative prices and freight rates, would be almost or completely restored. Mr. Lewis says we cannot leave economics out of the question. What kind of economics is it to propose, in effect, that those who are charging the farmers relatively no more than before the war should reduce what they are charging him, and thereby give him very little relief, instead of proposing that those who are charging him relatively a good deal more than before the war should make reductions to give him almost complete relief.

What Is the Answer?

The manufacturers and merchants would answer that they could not afford to reduce their prices to the farmer because their costs, and especially their labor costs, are much higher than before the war. Of course, the railways can make exactly the same answer. Obviously, if others cannot or will not reduce their prices to the farmer, they cannot consistently support a demand that the railways reduce their freight rates to the farmer.

What, then, is the answer to the farm problem? If the prices and rates of the things the farmer must buy are not to be reduced, the only solution is to help him get higher prices for the things he produces. We do not pretend to be able to say how this can be done. It is plain enough, however, that those, whether public officials, business men or farmers, who suggest merely a reduction of freight rates, are suggesting a palliative which would directly do the farmers little or no good, would do the railways harm, and would, indirectly, harm the farmers and all other shippers by impairing the ability of the railways to render good service.

Rates, Valuation and "Fair Return"

"The whole transportation question is an economic one," Mr. Lewis declared, "and the moment we try to tear it out of its larger place and put it simply upon the basis of earning capacity, or what percentage of rate of return there shall be upon the valuation of the property used, you are trying to do the impossible and will only make confusion worse confounded." This is an astounding statement from the chairman of a western railroad commission. The proposal to make a valuation and base rates upon it that would limit the railways to a "fair return" came from the territory for which Mr. Lewis was speaking. The valuation law was written by Senator LaFollette of Wisconsin, and it is doubtful if the record would disclose the name of any senator or representative from western territory who opposed it. For

years most spokesmen of the railways had opposed adoption of a "fair return on a fair valuation" as the basis of regulation. They contended that rates should be based on "what the traffic would bear"—that is, on general economic conditions—that they should increase when wages and prices were increasing, and that the railways should be allowed to earn what profits they could from rates thus made.

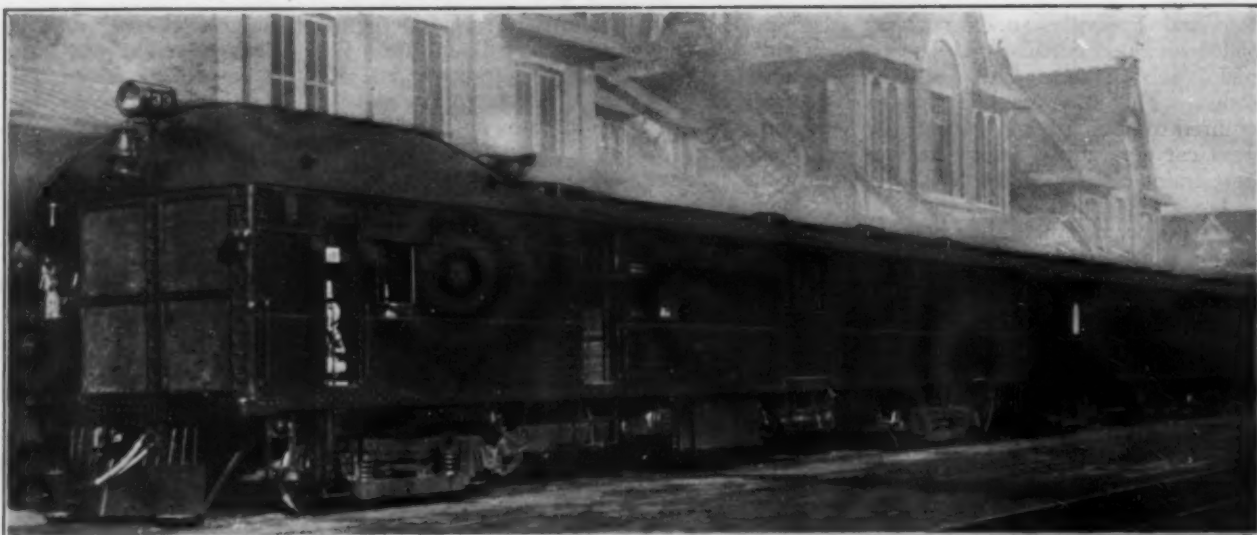
The railways were beaten. It was established as a fundamental principle of regulation that the railways should not be allowed to participate in the prosperity enjoyed by other industries in periods of great prosperity, but that, because they were engaged in a public service, they must be content, in both good years and bad, with a so-called "fair return." Between 1911 and 1917, under the application of this theory, farm prices increased 100 per cent and other prices almost as much. Meantime, railway rates, especially in western territory, declined. And now, when, under changed conditions the railways seek application of the principle then used against them, Mr. Lewis says the farmer "believes you to be grasping and unmindful of his interests." Who was "grasping and unmindful" of the interests and rights of others when Senator LaFollette and other public men purporting to represent western sentiment were getting regulation established on the "valuation and fair return" basis?

Mr. Lewis was entirely right when he emphasized the necessity for the railways to try to get a better understanding and better co-operation with the farmers. The lack of these things constitutes a great menace to both of them. It is a menace to the railways because it tends to cause ruinous regulation. It is a menace to the farmers because that kind of regulation would be in future, as it was before the war, ruinous to the service rendered by the railways to the farmers.

Farmers' Lack of Economic Organization

Perhaps the greatest obstacle to the solution of the farm problem is the lack of economic organization of the farmers. Many industries are so well organized that, to a considerable extent, they can and do control production. This enables to keep their prices high enough to cover their high labor and other costs. It also often gives the "big shipper" a power in dealing with the railways regarding service, rates and other matters, that puts other shippers that are less organized, including the farmers, at a disadvantage. There are some groups of farmers that are organized on an economic basis, and the railways can deal and co-operate intelligently with them. Generally speaking, the farmers are not so organized, and when the railways want to get a better understanding and better co-operation with them they do not know to whom to turn. To some extent the representation of the farmers in the Regional Shippers' Advisory Boards has remedied this condition. But when railway officers would like to sit down and discuss with farmers the railway problem and the farm problem and what they should do together to solve them, there usually cannot be found anybody that can sit on the farmers' side of the table with any actual authority to represent them.

Organizations of farmers always are being formed, but while they may start as economic organizations they usually soon turn into political organizations and, with respect to the railways, start agitating for general reductions of rates by government action, and supporting politicians like Brookhart, who can do little but howl and try to secure regulation unreasonably to reduce railway profits. The substitution of economic leadership and organization for political leadership and organization seems to be one of the greatest needs of the farmers.



Motor Car Train at the Wilkes-Barre, Pa., Station

Lehigh Valley Installs High Power Motor Cars

Four Brill 500-hp. units with trailers replace steam locomotives in local train service

AS a part of an extensive program for replacing steam locomotives on branch and main line local passenger trains where travel is light, the Lehigh Valley has recently placed in service four large Brill gas-electric motor cars built by the J. G. Brill Company, Philadelphia, Pa. Each motor car carries two power plants each consisting of a 250-hp. Brill-Westinghouse gasoline motor, direct connected to a Westinghouse 160-kw. generator. Both trucks are equipped with motors. The motor cars are 70 ft. 6 in. long over buffer plates and weigh approximately 130,000 lb. The passenger trailers, one of which will operate with each motor car, are 57 ft. 6 in. long over the vestibules and seat either 76 or 78 passengers. They weigh approximately 59,000 lb. each.

Passenger travel is light, and conditions in this respect lend themselves admirably to motor car service, on many runs where the amount of express and baggage

to be handled is heavy. To meet the requirements of such runs day in and day out, motor cars must have sufficient power to handle an occasional extra coach and one or more express and milk cars. The Lehigh Valley is the pioneer railroad to make extensive use of double power plant gas-electric cars to meet such conditions.

Two of the new Brill cars are operating between Elmira, N. Y., and Canastota, a distance of 118.4 miles, and two are operating between Wilkes Barre, Pa., and Towanda, via the Bowmans Creek branch, a distance of 79.2 miles. Each car makes a round trip daily.

The gas-electric cars are taking the schedules of passenger trains which were formerly operated by steam locomotives and standard passenger train cars. They will each handle one motor trailer and an amount of additional equipment varying with the different runs. On the line between Elmira and Canastota, one of the cars will be required to handle at times between Cana-



One of the Motor Trailers, which Seats 78 Passengers

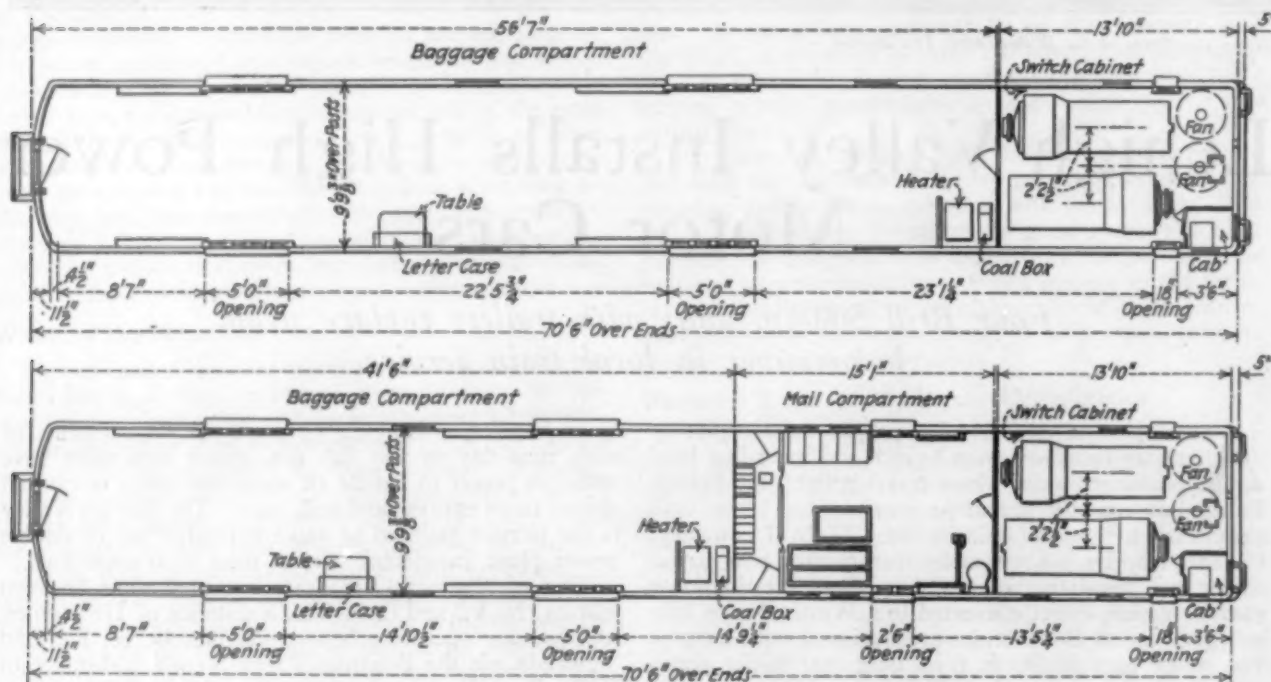
stota and Freeville, an express car weighing 53 tons loaded and occasionally will also have to pull a 60-ton steel coach or a steel express car weighing 63 tons loaded. The other car on this line at times will be required to haul either a 60-ton steel coach or a steel express car weighing 73 tons loaded. The schedules of these trains call for 37 intermediate stops in the distance of 118.4 miles, and a total time varying from 4 hr. 45 min. to 5 hr. 5 min. They operate over a rolling profile on which grades of one to one and one half per cent are common, with one grade of 2.4 per cent for a distance of 3.6 miles.

On the Bowmans Creek branch, in addition to the passenger trailer, one of the cars will at times be required to haul part way over the line as many as four loaded milk cars, weighing about 228 tons, bringing the maximum train weight to considerably over 300 tons. The train on which this maximum load is hauled has a schedule of 4 hr. 20 min. for the 79.2 miles, with 26 in-

room is provided in the motor car, the passenger trailer is undivided and seats 78 passengers. The passenger accommodations in all cases are fitted with 55-in. seats on one side of the aisle, to seat three passengers, and 35-in. seats on the other side to seat two passengers, with a 22-in. aisle space between. The seats are fitted with aisle arm rests.

The Power Plant and Control Equipment

Each power plant consists of a 250-hp. Brill-Westinghouse engine driving a 600-volt, 160-kw. Westinghouse generator through a flexible coupling. The unit, complete with the exciter, is mounted on a common bed-plate. The two power plants are mounted longitudinally in the engine room and spaced 4 ft. 5 in. between center lines. This arrangement permits access to either side of either unit and gives an aisle between to permit entry and exit from the engine room. A removable panel on each side of the engine room provides for the installa-



Floor Plans of the Motor Cars for the Bowmans Creek Branch

intermediate stops, over a profile which is a constant succession of sharp curves and steep grades. Many of the grades are two per cent and a few are even steeper.

One of the interesting features of these cars and the motor trailers with which they operate is that the arrangement of the floor space on each train has been worked out to meet the specific requirements of the run which it is to operate. Four different floor arrangements are represented in the four motor cars and two arrangements in the trailer cars. Two of the motor cars carry no passengers, one being devoted entirely to baggage and express and the other having a standard 15-ft. mail compartment back of the engine room. The other cars have smoking compartments 11 ft. 8 in. long with seats for 19 passengers. One of them is equipped with a 15-ft. mail compartment, while the other carries only baggage and express.

The trailers which operate with the non-passenger carrying motor cars are divided into two compartments, the smoking room seating 23 passengers and the main compartment seating 53 passengers. Where a smoking

tion and removal of the complete unit. One of the units is mounted with the generator facing forward and the other, facing backward. This arrangement permits a greater aisle width and places a large proportion of the engine auxiliaries on the aisle side where they can be inspected with a minimum of effort.

The engine is a vertical, four cycle gasoline type, with six cylinders having 7½-in. bore and 8-in. stroke. It is equipped with dual valves and ignition and is governed at 1,100 r.p.m. at which speed it will deliver 250 hp. continuously. It is arranged with four overhead valves per cylinder and equipped with removable cylinder sleeves and a seven bearing crankshaft, 4 in. in diameter. Lubrication is by full high pressure to all main connecting rod, camshaft, idler gear, and rocker arm bearings. A gear type pump delivers oil under variable pressure which is a maximum of 50 lb. with a full throttle.

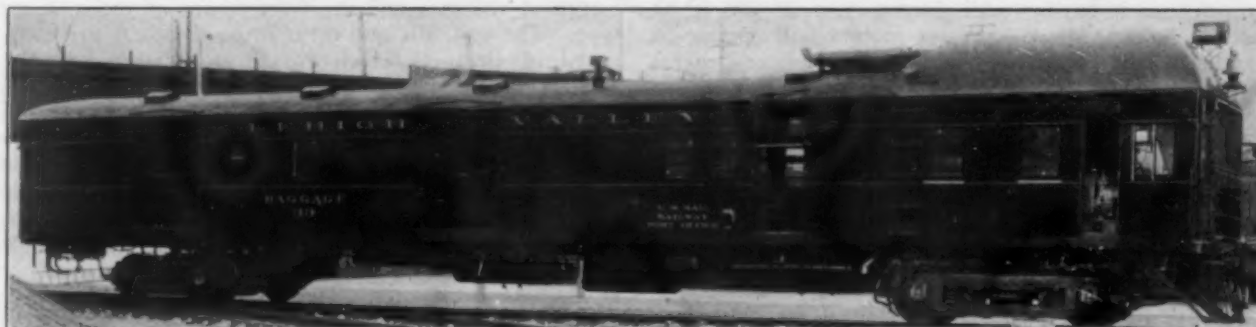
By suitably proportioning the magnetic circuits and field windings, the generator demand upon the engine is practically constant and this demand is automatically

translated into the combination of speed and tractive force necessary at the motors. The exciter is an integral part of the generator, having its armature on the extended generator shaft and its frame bolted to the commutator end generator housing. It performs the functions of exciting the generator, charging the storage battery and providing part of the energy for the lights.

There are two Westinghouse type 557-D-8 motors on

contained in an asbestos-lined switch cabinet. The rapid and positive opening and closing of the switches greatly reduces the arcing and burning, thereby prolonging the life of the apparatus.

The application of power to the motors is governed by the throttle handle which also serves as a master controller. Movement of the throttle handle from the "off" position first closes a toggle switch which governs



Seventy-foot Mail and Baggage Motor Car, Driven by Two 250-hp. Gasoline-Electric Power Plants

each truck and the trucks are fed separately, one from each generator. The motors have a nominal rating of 140 hp. and are applied with the maximum gear reduction. This results in maximum tractive force per ampere, and the high generator voltage available at low current values also allows high schedule speeds to be maintained. Motor cut-out switches are provided to enable either pair of motors to be cut out in case of trouble.

The control is the Westinghouse unit switch type,

the closing of the field and line switches. Further movement of the throttle handle changes the engine speed which, in turn, changes the car speed correspondingly.

Series-parallel control of the motors has been provided and is governed by the position of a tumbler switch in the operator's compartment. A special feature of the series-parallel arrangement used is the fact that the tumbler switch may be used to pre-select the motor connection while the car is drawing power. When the operator wishes to make the actual change, the only



Interior of One of the Passenger Trailers, with the Smoking Compartment in the Foreground—Seating Capacity 76 Passengers

arranged for single-end operation and housed in a cabinet in the engine room. This type of control is electrically controlled and pneumatically operated, making the operation of a double unit equipment as easy as that of a single unit. The duties of the operator have been reduced to a minimum by the use of remotely controlled apparatus and by reducing the amount of manual control apparatus as much as possible. No high voltage current-carrying apparatus is near the motorman as it is

action necessary is to return the throttle handle to the "off" position and immediately return it to its former position. This method reduces to a minimum the time lost in changing the motor connections and assists in maintaining a higher average accelerating rate and a higher schedule speed. Separate ignition switches for the two engines permit the use of either one alone in case trouble should develop in either power plant.

The direction of motion of the car is governed by a

plug switch with two receptacles, placed near the operator. The insertion of the plug in the proper receptacle establishes electrical connections to throw the reversers to the desired position. An ammeter, placed in each generator circuit, enables the operator to take full advantage of all the power available without overloading any of the apparatus.

Air to operate the brakes, control, etc., is furnished by two Westinghouse 600-volt, motor-driven air compressors, each having a displacement of 25 cu. ft. at rated voltage. The compressor motors will operate in parallel, being connected directly across either generator by means of a double-pole, double-throw switch.

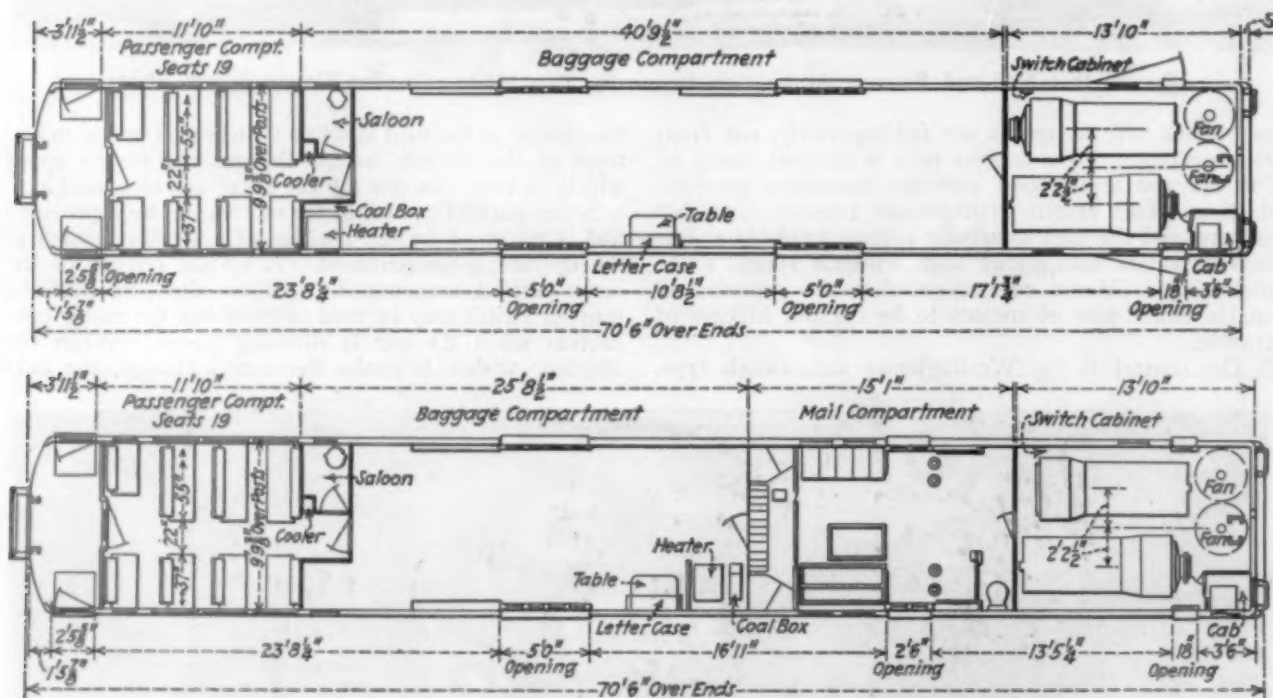
Since the cars are for single-end operation, the radiator is mounted at the front and is divided into four sections. It is set at the left of the end of the car to provide room at the right for the operator's compartment. Immediately at the rear of the radiators is an air chamber closed on the bottom and sides, but with

so that both can be filled at the same time from one side of the car.

Construction of the Cars

Both the motor cars and the trailers are essentially of all steel construction. The underframes are built up on center sills of 10-in. channels which extend continuously from end sill to end sill. The side sills are 4-in. by 4-in. by $\frac{3}{8}$ -in. angles which also extend for the full length of the cars and the bolsters are of the built-up type. The end sills and other cross members are composed of channels which are securely riveted to the side and center sills with angle brackets.

The corner posts of the car body frame are of pressed steel, while the side posts are 2-in. by 2-in. by $\frac{1}{4}$ -in. to 5/16-in. rolled steel tees. These are riveted to the side sills at the bottom and to the 4-in. 8.2-lb. Z-bar side plates at the top. The belt rail is a 3½-in. by 1½-in. flat steel bar, riveted to the side posts below the window



Floor Plans of the Motor Cars Operating Between Elmira, N. Y., and Canastota

an opening at the top. In this opening, slightly above the top of the radiator, are two fans mounted side by side in a horizontal plane and each driven by a shaft projecting downward to a vertical motor placed on the car floor. Parallel and series connections provide two speeds for the fans.

To assist in the movement of the air which is driven upward by the fans of the motor cooling system, a shroud or false roof is placed over the front of the car, extending back about eight feet and open at the rear. The air is forced into the space between the two roofs at the front and then will travel back towards the outside air. The expansion water tank is so located in this space that the air exhausted by the fans will pass over the tank. The exhaust pipes come through the roof into this space with the mufflers mounted back of the shroud.

Fuel is supplied to the engine by the vacuum feed system to two carburetors on each engine. The fuel supply is carried in two 150-gal. tanks under the car floor. These tanks are connected with an equalizer pipe

sills. It is covered with a 16-gage pressed-steel window sill cap. On the trailers, the top rails are 2½-in. by 2-in. by $\frac{1}{4}$ -in. angles. On all of the cars the side posts are encased with wood.

Both the letter panel and the side sheathing are of 3/32-in. patent leveled sheet steel and the joints in the side sheathing are covered with splice plates of the same material.

The roofs are of the plain arch type, supported by 1½-in. by ¾-in. steel bar carlines to which the wood cross members are secured. The roof is of 7/16-in. poplar boards, tongued and grooved, and is covered with No. 8 canvas, bedded in white lead. The cars are insulated throughout with ¾-in. three-ply insulating material, except the floors of the baggage and engine rooms.

In all passenger and baggage compartments, a double floor is laid. The bottom floor is of ¾-in. tongued and grooved fir, laid crosswise. In the passenger and mail compartments this floor is covered with three-ply Salamander insulation and over this, with a 1-in. air space between, is laid a 13/16-in. maple floor with the boards

running lengthwise. In the baggage compartment two-ply Salamander is placed over the bottom floor and a top floor of 15/16-in. yellow pine is laid with a 1/2-in. air space between the two floors. The floors in the engine rooms and vestibules are a single course of 1 5/16-in. yellow pine, without insulation.

The trailers and the motor cars in which smoking compartments are located, all have vestibules 3 ft. 11 1/2 in. long at the diaphragms, with side and trap doors over the steps, and the openings of which are 2 ft. 5 3/4 in. wide.

The rear ends of all of the motor cars and both ends of the trailers are fitted with two-stem platform buffers and Morton single-fold vestibule diaphragms.

Each motor car and trailer is equipped with hot water heater with radiation from two lines of 2 1/2-in. pipe on each side of the car. The windows in all passenger compartments are fitted with removable storm sash. On all of the motor cars connections will be made between the car heater and the engine radiator system in order that it will be unnecessary to drain the radiators at the end of each trip, and to facilitate the starting of the engines after they have been standing idle for some time.

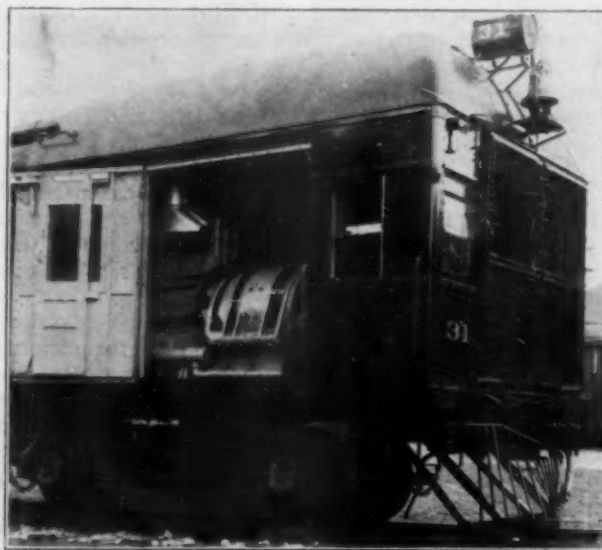
The motor trucks are of the Brill High-Speed type, equipped with solid forged side frames, equalizers and side swing dampeners. The front truck, which carries the heavier load, has a wheel base of 7 ft. 9 in. and is

fitted with spring draft gears using A.R.A. Class G springs in each yoke.

The cars are equipped with Westinghouse automatic air brakes with the straight air feature on the motor cars.

Battery Equipment

Each car is equipped with a 16-cell storage battery, to supply engine starting current, to energize the exciter field and to provide lighting. It is charged normally by the exciter although a receptacle will be provided in order that an external charging source may be used if desired. A charging and lighting regulator will regu-



The Engine Room, with the Removable Side Panels Swung Open



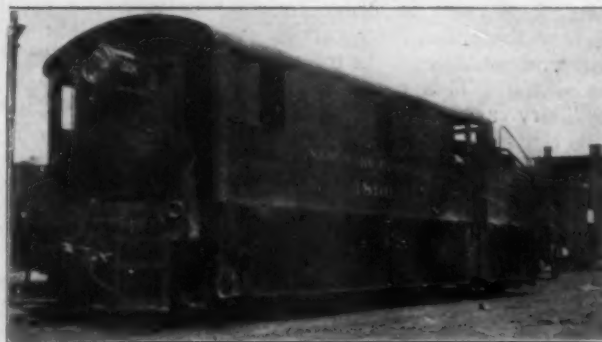
Looking Forward in the Engine Room—One of the Cooling Fan Motors Can Be Seen at End of the Aisle Between the Power Plants

fitted with four elliptic bolster springs at each side. The wheel base of the rear motor truck is 7 ft. 6 in. and this truck is fitted with three elliptic bolster springs at each end. The trailer trucks are of light construction with 6 ft. 6 in. wheel base, fully equalized. The axles are of the A.R.A. type with friction bearings and carry 33-in. rolled steel wheels.

The cars are equipped with light weight bottom operated couplers manufactured to the standard A.R.A. contour and having 4-in. by 5-in. shanks. They are

late the exciter voltage for battery charging and provide constant voltage across the lamps.

These cars, which have been in service for varying periods of a month or more, have been received with every evidence of satisfaction by the patrons of the lines which they serve. The normal crew consists of a motorman, baggageman and conductor. The cars maintain their schedules as well as did the steam locomotives which they replaced and have developed no operating difficulties more than are to be expected with the introduction of a new class of equipment until the operating organization has time to become thoroughly familiar with it.



Locomotive Used in West Street, New York by the N. Y. C.

The Panama Canal Handicaps Mid-West

OPPPOSITION to any change in the present flexible provisions of Section Four of the Interstate Commerce Act or to any other legislation which would deprive the Interstate Commerce Commission of its authority to exercise judgment in the administration thereof in the public interest, was expressed in a resolution adopted by the North Central division of the Chamber of Commerce of the United States at its mid-year meeting held at Chicago on January 20 and 21. The resolution was adopted following addresses by Charles Piez, chairman of the board of directors of the Link-Belt Company, Chicago; James R. Howard, former president of the American Farm Bureau Federation, Clemons, Iowa; William R. Dawes, vice-president of the Central Trust Company, Chicago, and D. F. Lyons. The latter, general counsel of the Northern Pacific, spoke for President Charles Donnelly.

"The interior of the country," the resolution stated, "is suffering from conditions created by the Panama canal. The middle west can no longer compete with similar industries located at or near the sea coast in markets in the far west. The welfare and prosperity of agricultural in the middle west is largely dependent upon industrial development in this section of the country. The fourth section of the Interstate Commerce Act, provides that in special cases the Interstate Commerce Commission may authorize railroads to charge less for a longer than for a shorter distance over the same route in the same direction. Constant attempts are being made to enact legislation that will deprive the commission of the exercise of judgment in the administration of this section of the law, which is necessary to meet the constantly changing economic conditions. The particular object of such legislation is to make it impossible for a rail carrier to meet water competition. Such legislation is particularly inimical to the welfare of the region represented by the Northern division of the Chamber of Commerce of the United States."

Mr. Dawes stressed the right of the middle west to expand. It is unwise to build up two great industrial centers on the coast and leave the middle west undeveloped. He warned the members that the Pacific coast would be depleted of finished products and raw materials when the China market developed.

Mr. Howard spoke in the same strain, and also advocated the immediate construction of the St. Lawrence waterway. Mr. Piez would revise the rates through the Panama canal so that the traffic would bear the cost of amortizing the investment in the canal and the maintenance of the fortification of the canal. He traced the efforts of the trans-continental railroads to reduce their long haul rates in order to compete with the canal. Where the ship owner carries 2½ tons of freight, the government assesses the toll on the basis of one net registered ton. This means that the toll per long ton of ordinary cargo is actually about 48 cents, or a trifle over two cents per 100 lb. This is a really trivial charge for the advantages which the canal route offers, but it enables Belgian and German competitors of mid-western manufacturers of steel and cement to lay down their products at Pacific coast points at a freight cost of \$3.50 per ton.

Mr. Lyons attributed the cutting off of the middle west from Pacific coast markets to the government's rate-making policy as well as to the Panama canal. He declared, however, that in view of the opposition of the intermountain territory and the adverse decisions of the commission, he believed that "no one would wish at this

time to incur the displeasure of the people of a vast region by the renewal of an application having so little promise of success." He said in part:

"Rail rates to the Pacific coast are not now made on a water-competitive basis. During the war such rates were discontinued, and for the very excellent reason that there was then no water competition to justify them, the boats having been withdrawn and transferred from the intercoastal to the trans-Atlantic service. After the war, and with the revival of intercoastal shipping the rail carriers sought leave from the commission to restore them. The application was denied in October, 1922. It was presented anew in a changed and somewhat attenuated form, as covering only a restricted number of commodities. It was again denied in March of last year, and so the case now stands. Middle western manufacturers are deprived today of the Pacific coast markets which they formerly enjoyed. The Panama canal affords, of course, a splendid means of cheap and easy access from one ocean to the other, and notwithstanding this the middle west did business on the Pacific coast because the rail rate adjustment allowed of it. But it was not the opening of the Panama canal alone that wrought the change. The opening of the canal coincided practically with a change in the government's policy. Starting with the Commission's decision in 1909 in the Spokane rate case, there has been an increasing tendency on the part of that tribunal, in decisions since rendered, to deny to transcontinental rail carriers the right to make the water-competitive rates necessary to open the markets of the Pacific coast to the manufacturers of the middle west. The Panama canal was opened in 1914. Except during the war period, the volume of intercoastal traffic moving through it has since steadily increased, and the right of rail carriers to make rates to attract this traffic has been denied.

"A tide of empty cars, which must move to the coast for eastbound loads, is available for the westbound movement to the coast of whatever may be loaded into them. Under such circumstances a low rate—a rate sufficiently low to enable the middle west manufacturer to lay down his product on the Pacific coast at a rate comparable with the water rate enjoyed by his competitor on the Atlantic seaboard—might well yield some profit to the rail carrier, if the rail carrier were permitted to make it. But if the rail carrier is required at the same time to reduce correspondingly the rates at all intermediate points where competition is not met, such a condition, of course, cannot be accepted. To accept it would be ruinous. The great volume of a rail carrier's tonnage must move on normal rates. Rates which are abnormally low (and of course rail rates made in competition with water carriers are abnormally low) will not, when applied to all traffic, produce an adequate return.

"The question arises whether anything can now be done. Considered simply as a rate question, I should say that today there is not. The case for the rail carriers and the middle west (for their interests here are the same) has been fully considered and on full consideration rejected. It is to be remembered, moreover, that the people of the intermountain territory have consistently opposed the rate making principles for which I am here contending and have refused resolutely to accept them. On the economic soundness of those principles I have not the slightest doubt. I have not the slightest doubt that while they were in effect their operation was beneficial to the carriers, beneficial to the middle west, and detrimental to no one. But these cases having been decided against us, I believe that no one would wish at this time to incur the displeasure of the people of a vast region by the renewal of an application having so little promise of success."



Photo by Ewing Galloway, N. Y.

Western Farmers' Attitude Toward Railways*

"The Other Fellow's Viewpoint" as seen by a regulating official of long experience

By Dwight N. Lewis
Chairman, Railroad Commission of Iowa

IN acting in the capacity of commissioner any man should use his utmost endeavor to ascertain all of the facts of both sides of any disputed point and then, regardless of favor or possible political consequences, use the best judgment he has. Regulation there must be, because transportation is the life blood of our country. The carriers, themselves, would be the first to call for help, should all regulatory laws be swept away. To my mind, regulation should only extend to the safeguarding of the business interests in seeing that there is fair play in every detail of transportation, but regulation should not extend to the throttling of initiative or invade the functioning of the executives.

I come from a state that has been vilified to some extent because it has cried out in anguish when its power to buy has been reduced out of all proportion to other communities of the east. To be sure we have had our faults. We did place temporarily too high a value upon our land, money was loaned on that value to some extent and our people thought that the era of good things was meant for the agricultural interests as well as for the industrial interests, but somehow that did not work out. Thousands of our farmers have lost their savings and some have lost their farms. Banks have gone tumbling down, leaving in their wake distress, poverty and bitterness. Industrial east laughs at our woes and mocks at our necessities and so we strike back as only we can. Never was there a finer, more friendly feeling towards the railroads, for instance, than was exhibited in Iowa in

1919 and 1920. Heavy advances in rates were permitted and then it seemed to our people that the railroad managers had an insatiable greed for more. When grain prices dropped and dropped, the railroads demanded an increase in the rate and while the increase asked for may have been slight indeed, yet our people felt it was an effrontery and it only added to their bitterness and grief. The feeling of friendliness gave way to one of distrust and in some places, I am sorry to say, to extreme bitterness.

May I venture the thought that you had bad advice when you sought to increase the taxation on an overwrought people by adding a small amount to the freight rate upon their produce. I am not unmindful that the earnings for the total western district railroad amounted to but 3.45 per cent for 1922 upon property investment. There has been a gradual increase, however, on this rate of return until there is now more than 4½ per cent. This is not as good as it is for the United States as a whole, but it is good considering the situation generally in the agricultural middle west.

What the Farmer Thinks

The farmer sits by his kitchen stove trying to figure just what he can dispose of to pay his taxes, and cannot get your point of view that you should still have more money from him for carrying his products, when you have already by your own statistics earned more on your property investments many times over than he has been able to do this year, or last year, or the year before. He, therefore, believes you to be grasping and unmindful of

*Extracts from an address delivered before the Western Railway Club, Chicago, on January 10, 1927.

his interests. If we stop and think a moment, we know that the carriers in the western district can only permanently prosper when the public, whose land they traverse, are a happy, prosperous people. There is a feeling that the western railroads should be willing to share some of the hardships right now that are sorely besetting our agricultural interests.

It will not do to say that these expressions come from radicals and that if the farmer was content to live without an automobile or a radio and should work like his grandfather did from 4:30 A.M. to 8:30 P.M., he would not be so hard up. That day has gone, unless we wish to reduce our intelligent, energetic, agricultural operators to the level of peasants. That, of course, cannot and will never be.

Everywhere we turn, your railroad statistics show a comfortable margin of prosperity for the railroads. The net returns are constantly increasing due in a large part to intelligent management and reduction of expenses. There is a greater mileage per car per day than ever before, and while your taxes have increased tremendously since 1913, this is largely due to the federal tax. Over against this, however, the railroads are paying greater dividends this year than any time since 1914.

The Railway Business Association at a recent convention adopted the following resolution regarding the farmer:

"Some of those who had brought pressure upon the Interstate Commerce Commission for reductions in rates upon heavy and bulky goods, suggesting compensation through increases on other freight, have postponed their proposals pending further progress in railway unifications.

"In respect to farm products such pressure continues. The farmer's best friends are those who tell him the truth about his dependence upon transportation and industry. The truth is that rates on farm freight are secondary in importance to service and markets. The railroad problems that most concern farmers are to preserve the carrier so that the goods can reach market promptly and safely and to sustain domestic consumption of agricultural commodities by stabilizing railway buying power, upon which depend the maintenance and growth of industrial community buying power.

"The Interstate Commerce Commission exercises a national responsibility. Discussion of rate adjustments should proceed in an orderly manner before that body with the same avoidance of agitation outdoors which is accorded the courts."

Economics, Valuation and Fair Return

Not a word in these resolutions about sitting down with a representative group of farmers to talk this over, yet every one who knows the conditions will agree with the rightness of the resolution. If the railroads want to make a real contribution to good feeling, they should announce a freight percentage decrease in the rate on all farm products for the next six months and the decrease would not have to be a big one at all. It would be an evidence to a distressed community that the railroads care for their patrons and their patrons' interests.

Our agricultural situation cannot remain static. It must either improve or grow worse—the latter is unthinkable. I wish all of you and each of you might do your best to put yourself in the place of one of our Iowa, Nebraska or South Dakota farmers. With your business gone and a reduced price on what was left, with high taxes to pay and with the announcement that the shippers organized all over the country were insisting on further reduction of your income, just how would you feel? When you were in that situation, the shippers of the United States did not do that. They even went so

far as to pass resolutions urging such an advance in rates as would rehabilitate and make prosperous your properties. I do not want to see a break come anywhere. Neither do you.

It is useless to say economics should not enter into the discussion of freight rates. They cannot be kept out. The subject intrudes itself at every rate hearing and like "Banquo's Ghost" it will not down. The whole transportation question is an economic one, and the moment we try to tear it out of its larger place and put it simply upon the basis of earning capacity, or what percentage of rate of return there shall be upon the valuation of the property used, you are trying to do the impossible and will only make confusion worse confounded.

Railways, Buses and Trucks

There is a bitter feeling on the part of representatives of rail carriers because of the advent of the bus and the truck. For nearly a century the railroads have said, "Here is our railroad and here is our station. Come and use us." Sometimes they have insisted on placing their station facilities so as to be a real inconvenience to the people of the community served. The theory, whether spoken or not, was the public will have to come. It never has been convenient and isn't now. Sometimes the cost of getting to the station with freight or passengers is greater than the haul upon the railroad. Now comes into the field of transportation a new vehicle which on rubber cushions rolls up to your door, and the people like it. Three years ago at Atlantic City I told our electric rail carriers that if they wished to maintain their transportation systems, they must instead of fighting the new method, adapt it to their own use. Some of the big railroads of the country are experimenting with trucks so they, too, may give in connection with their railroad carriage door to door delivery. The present state of disjointed transportation service can not long continue, for the public is going to demand a coordinated service, and gentlemen, what the public demands it eventually gets, whether some of the rest of us like it or not. It will not do for you to sit in your office trying to work out a scheme to throttle a competing truck line. It should be your best thought, and it must be, to work out some scheme of coordinating transportation agencies into a smooth-running and public-serving machine. The present hodgepodge can not continue. Mail and express are now enjoying the door to door delivery. Freight must come next, and why not passengers? Here is a field for initiative that has not been taken away from railroad managers by laws of Congress or states. In our own state of Iowa our legislature has directed our board to grant certificates of operation for bus and truck lines after a proper showing has been made. We have been conservative in issuing these certificates, trusting that within a reasonably short time carriers already in the field would adopt the new service in connection with their own.

Talking Things Over with Patrons

The oftener you men can get with groups of our patrons along the lines of your road and talk things over, and as has often been said "lay your cards on the table," the better state of mind you will all be in, and the easier it will be to adjust rate differences as they come up, if you maintain a fair and agreeable state of affairs at all times.

Everyone who believes profoundly in the universal prosperity of our nation's interest will rightfully rejoice that 1926 was a banner year for the railroads, and every honest and sincere man will wish that 1927 shall be a greater year for the railroads, for, generally speaking,

as our transportation systems prosper so will all other interests prosper. There is too often a disposition, however, when our own particular industry is flourishing to forget that its continued prosperity rests upon the financial steadiness of other interdependent industries. The net operating income of railroads for 1926 will probably exceed \$1,200,000,000, with an estimated dividend for stockholders in 1926 of \$355,000,000, a much greater sum than any year since 1913 except for the year 1914; and the rate of return earned on investment will be about 5.25 per cent, being somewhat less than in 1916 and previous years but a greater rate of return than has been earned since the war. In five years the net operating income of the railroads has increased approximately 60 per cent, notwithstanding the enormous amounts paid for repairs of roadbed, track, rejuvenation of rolling stock, getting the railroads back into such splendid condition, so that now we have practically no trouble with reference to shortage of cars and other difficulties of operation, although the railroad companies during the past year hauled much more freight than ever before in their history.

In the face of this showing a regulatory body is confronted with an application by these same carriers for increase in the rates on agricultural products. Three years ago in conferring with the President of the United States on some matters which I believe were vital to our best interests, I candidly expressed the belief that at that time there should be no reduction in the grain rates on our northwestern lines of railroad, for I did not believe the financial condition of the railroads would justify any marked reduction. Since that time the prosperity of the railroads has been constantly on the upgrade. On the contrary, our agricultural industry of the west and northwest has struck bottom. Groaning under the bonds of higher taxation, loss of money in bank failures, and low prices on agricultural products, it was the last straw when the western railroads proposed an increase in all grain and grain products. Pardon me if I say it was the most unwise thing that could have been done by the carriers. This helped to fan the always latent suspicion that huge corporations, whatever service they may be performing, are constantly alert to take undue advantage of the producer and the consumer. Will the contention of the producers of our agricultural products that the railroads should drastically reduce their rates,

or the contention of the carriers that they must still have greater rates, ever solve the difficulty that is always sure to get into politics? To ask the question is to answer it.

A Farmer's View of Rates

Just in line of proof with the statement I have made that our good farm citizens of Iowa are as honest and square a bunch of men and women as exist on the face of the earth, I am going to quote a remark made recently by Charles Hearst, president of the Iowa Farm Bureau, from his address to his members:

"Misstatements as to the causes of the farm deflation have heretofore been made and remedies suggested which indicated the ignorance or lack of sincerity of those offering the advice.

"It has often been suggested that a reduction in transportation rates would restore agriculture to its prosperity. It is perfectly clear that, if the entire transportation charge were removed from farm products, the farmer would not be able to operate at a profit on account of this saving. The farmer is fair and expects to pay a reasonable charge for services given him."

The problems are so many and so tremendous it would be utterly futile to attempt to touch on them this evening. They can not all be adjusted by friendly cooperation. The interests are too divergent, but I believe in the main they can be, and ought to be, but as long as people representing any line of thought or commercial interest insist upon acquiring their rights without regard to the other fellow's necessities, then there will be the continual contention and expensive litigation. Quoting the late lamented Senator Cummins: "As I have grown older, I find that while I am still as sure I am right as I ever was, yet I am not so sure now that the other fellow is wrong."

And upon that statement I wish to leave with you the thought that it is exceedingly surprising and sometimes discouraging to a regulating official that more sincere efforts are not made for mutual understanding, by cooperation, taking up problems vital to the public, looking toward a satisfactory solution on a purely economic basis with a recognition of the common interest.

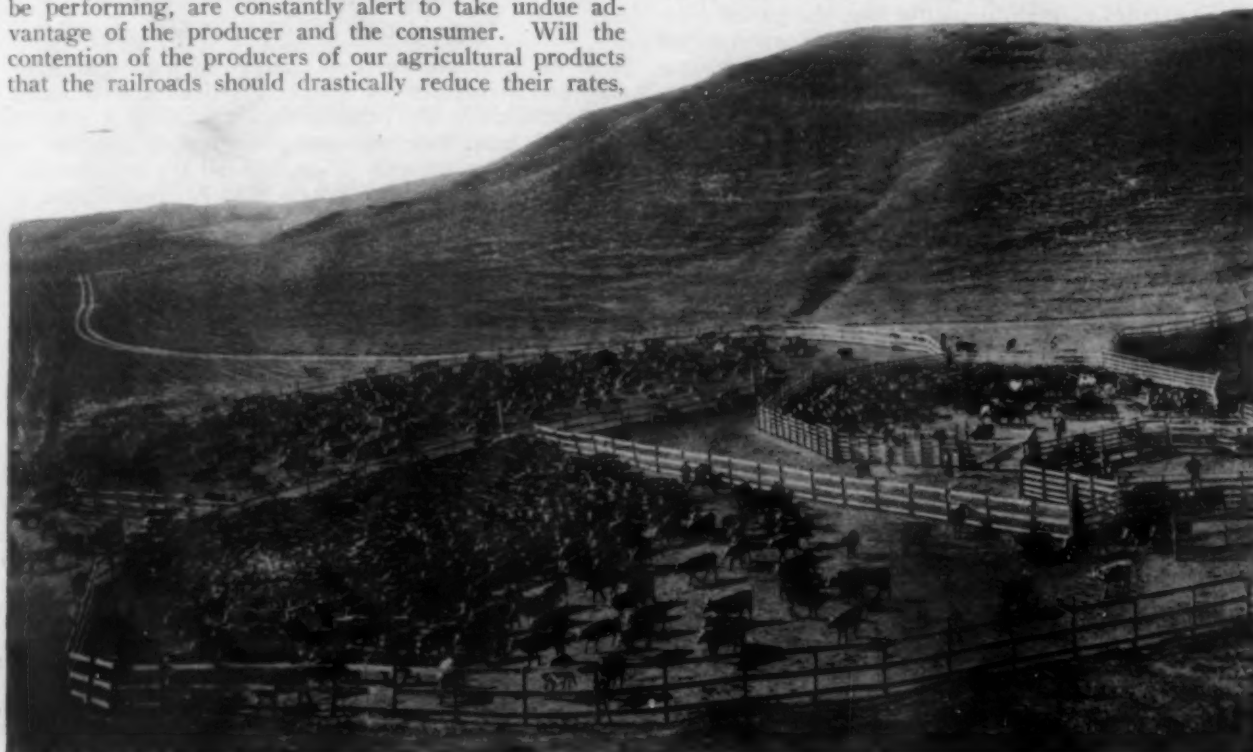


Photo by Ewing Galloway, N. Y.

An Analyst's View of the New Accounting Classifications

Believes amplification of revenue and expense accounts might help justify present large accounting costs

By Joseph L. White

IN a previous article in the *Railway Age* of January, 15, 1926, the writer outlined the data required for an analysis of the causes of fluctuations in revenues and the extent to which these requirements are met by the proposed revision of the classification of operating revenues. It is the purpose of the present article to present the situation with respect to the analysis of operating expenses.

Group Related Accounts?

As in the case of the analysis of operating revenues, the analyst requires, first, for purposes of general comparison, a classification of the causes of the expenses. The present classification of operating expenses is voluminous and the reduction in the number of accounts has been one of the principal objects pursued by the railway accounting officers. In place of the radical consolidation of accounts proposed by the accounting officers but not yet accepted by the Commission, might not the related accounts be grouped together and sub-totals of these groups be inserted on the statement of expenses called for in the annual report to the commission? These sub-totals would form a condensed classification of primary accounts which would be helpful to the busy executive while the more detailed primary accounts would still be available to the analyst.

Some roads are now following this plan in their annual reports to stockholders.

For purposes of general comparison, the primary accounts provide a sufficiently detailed classification of the causes of the expenditures; but for purposes of analyzing causes of fluctuations in these accounts and the development of unit costs some further subdivisions of the repair accounts might be advisable as noted hereafter.

Changes Suggested in Maintenance of Way Accounts

In the first place, a separation of all accounts as between labor, material and miscellaneous is necessary in order to determine the relative effect of changes in rates of pay, prices of materials and quantity of work performed. Sub-accounts to record such a separation were included in the tentative revision circulated by the Bureau of Accounts about two years ago but unfortunately this provision is not included in the present revision. The Bureau of Accounts should adhere to its original plan in this respect.

With the labor and material items in each account segregated, the effect of changes in rates of pay and prices of material can be determined with sufficient accuracy for the purposes of current analysis by means of equation factors.

The effect of changes in the quantity of work performed is not so easy to determine. The quantities of major track materials, viz., ties, rails and ballast are available but in the present classifications the labor of applying these track materials is included in Account 220

—"Track laying and surfacing" and is not distributed as between the different materials applied. This situation is made even worse in the proposed revision by the consolidation of the two labor Accounts 202, "Roadway maintenance" with Account 220, "Track laying and surfacing."

This consolidation certainly sounds the knell of any attempt to develop unit costs of track work. Here we shall have labor expense aggregating 35 per cent of maintenance of way and structures expense thrown into one account with no basis for an accurate analysis of the work performed for which this huge expenditure is made.

There seems to be a decided difference of opinion between the accounting officers and the maintenance of way officers on this question of the distribution of track labor and the development of unit costs of track maintenance. The reports of the Committee on Records and Accounts of the American Railway Engineering Association indicate that its members believe that a reasonably accurate distribution of track labor can be made and that the unit costs of track maintenance developed therefrom will facilitate the analysis and control of expenditures and will bring about substantial economies.

The labor of the section gang used in applying ties, rails, other track material and ballast should be distributed to those accounts and the balance of the labor used in track maintenance should be left in Account 220. The distribution to Account 202, Roadway Maintenance should be continued on the present basis.

Depreciation and Retirements

In the proposed revision charges to maintenance of way and structures for property retired and replaced now included in the primary repair accounts are to be excluded from these accounts and grouped together in one retirement account. Similarly all the maintenance of way depreciation accounts are to be consolidated in one depreciation account. A similar consolidation is made of the equipment depreciation and retirement accounts. This method of handling depreciation and retirements is not consistent with the order of the commission recently issued with respect to depreciation charges and will presumably be revised. Therefore comment at this time would be inappropriate.

It does seem appropriate, however, to point out that the suggestion of the railway accounting officers that depreciation and retirement accounts should be transferred from the maintenance accounts to a new general account is contrary to the generally accepted principle of accounting that depreciation should be recognized as an element of maintenance. It would also seriously distort comparisons with previous years.

Suggested Changes in Maintenance

of Equipment Accounts

The separation of the primary repair accounts between labor, material and miscellaneous items is even

more important in the case of maintenance of equipment than it is in the case of maintenance of way where a preliminary separation has already been made in the track accounts. The three principal equipment repair accounts covering steam locomotives, freight cars, and passenger cars contain over 70 per cent of total maintenance of equipment expenses on the average railroad. There are no satisfactory physical units of repair work actually performed applicable to the total repair costs of each class of equipment. The miles run by the equipment during the period, which are ordinarily used for this purpose, represent the requirements for repairs rather than the work actually performed. The value of material applied properly equated for changes in the purchasing power of the dollar, while imperfect in many respects, probably reflects more closely than any other available data the relative amount of repair work performed in each period.

Separation of Running and Heavy Repairs

The relation between the value of material applied and the labor cost of application is also more significant if repairs are divided between running repairs and heavy or classified repairs as the ratio of labor to material differs widely in the two kinds of repairs.

The writer therefore suggests that in addition to the separation of the repair accounts between labor, material and miscellaneous items they be divided between running repairs and classified repairs. Additional subdivisions of the freight train car repair account, however, are required. As now stated this account is probably the most difficult account in the entire classification to analyze.

The Complications of Analyzing Freight Car Repairs

The difficulty of analyzing the cost of repairs to owned freight cars on account of the complexity of the charges and credits to account 314—"Freight train cars—Repairs," was discussed by the writer in an article in the *Railway Age* of July 5, 1924. An analysis of this account would reveal the following dissimilar items now lumped together in one account.

Repairs to Owned Cars—

1. Repairs made on the home railroad divided between:

Labor.
Material.
Miscellaneous.

2. Repairs made by railroads and others and billed against owner at M. C. B. prices.

3. Repairs made in outside shops at contract prices.

4. Miscellaneous items.

Repairs to Foreign Cars—

1. Billable defects (owner's or carded defects).

A. Charges—Actual cost of repairs to foreign cars covering defects that can be billed against the owner or other party responsible for the repairs divided between:

Labor.
Material.
Miscellaneous.

B. Credits—Bills against owners or other parties responsible at M. C. B. prices for items included in "A."

C. Net profit or loss (net of "A" and "B").

2. Non-billable defects:

Labor.
Material.
Miscellaneous.

3. Net cost of foreign cars destroyed.

Car Builders Claim Costs in Contract

Shops Lower Than in Railroad Shops

More than usual interest is attached at this time to the analysis of the cost of freight car repairs because of the recent appeal of the car builders through the American Railway Car Institute to President R. H. Aishton, of the American Railway Association that the railroads curtail further expansion of manufacturing facilities and utilize the facilities of the car building companies which are now being operated at only a small percentage of capacity. It is claimed by the car builders that the cost of repairing or rebuilding

cars at their plants even after allowing for all overhead and a reasonable profit is less than the cost of similar work in the railroad shops. It therefore behooves the railroads to analyze freight car repair costs more carefully than has hitherto been done and determine what the costs really are.

One of the chief difficulties in the way of such studies has been the lack of detail readily available covering the various items in the freight car repair account.

This account, therefore, might well be divided into two accounts, viz.

Repairs to owned freight cars

Repairs to foreign freight cars

with the subdivisions between running and heavy repairs and labor, material and miscellaneous suggested for the equipment repair accounts. A supporting schedule giving the items included in the foregoing table should also be prepared currently and included as one of the schedules in the annual report to the Interstate Commerce Commission.

The statistics of freight car miles of owned and foreign cars should also be reported separately and the car days of owned and foreign cars on the home road and owned cars on foreign roads should be added to operating statistics in the annual report to the I. C. C.

With this accounting and statistical information available, a much more accurate determination of the cost of freight car repairs can be made than under present conditions.

Transportation Expenses

Few if any changes seem to be necessary in the classification of transportation expenses. The primary accounts have been so classified by the commission that with a few exceptions the greater part of each primary account is either labor, material or miscellaneous. The classification by these items of expense has thus to a large extent already been made automatically. This classification of labor, material and miscellaneous separately by primary accounts makes it necessary to group together accounts relating to the same classified cause of expense and provide sub-totals for these groups in order to give a summary of the fluctuations in the principal items of transportation expenses that can be grasped readily by the busy executive. Such a summary was suggested in the writer's book on "Analysis of Railroad Operations"; the grouping of accounts being as follows (The account numbers refer to the present classifications).

1. Train and Locomotive Operation
 - a. Train Operation (Accounts 392 to 402, inclusive).
 - b. Yard locomotive operation (Accounts 378 and 380 to 388 inclusive).
2. Operation of Stations and Other Facilities
 - a. Station service (Accounts 373 to 376, inclusive).
 - b. Signals and crossing protection (Accounts 379 and 404 to 407, inclusive).
 - c. Operating floating equipment (Account 408).
 - d. Operating sleeping cars (Account 403).
3. Supervision and Miscellaneous
 - a. Supervision (Accounts 371, 372, 377 and 389).
 - b. Casualties (Accounts 415 to 420, inclusive).
 - c. Miscellaneous (Accounts 409, 410, 411 and 414).
4. Joint Facilities (Accounts 390, 391, 412 and 413).

Statistics of work performed viz., locomotive-miles, train-miles, car-miles and gross ton-miles are very complete for train operation. Yard locomotive-miles are also reported but as they are estimated on the basis of 6 miles per hour, they do not necessarily reflect the relative amount of work performed. This is more satisfactorily represented by the cars handled. It is suggested, therefore, that the cars handled in the principal yards should be reported by class I roads, this information now being reported only by the large terminal companies.

Cost Accounting

In addition to providing the basis for an analysis of the causes of fluctuations in revenues and expenses, the accounting classifications of the Interstate Commerce Commission should provide for the assembling of the basic data for the ascertainment of unit costs through scientific cost accounting. Unit costs may be divided into three general groups:

1st—Unit costs of operation, such as applying ties, laying rails, repairing locomotives and cars, despatching locomotives at terminals, running a freight train a mile, handling freight at stations, etc.

2d—Unit cost of service, such as the cost of freight service per ton-mile and of passenger service per passenger-mile.

3d—Unit costs of manufacturing, such as treating ties, manufacturing castings and other material at shops, rebuilding cars, etc.

Unit Costs of Operation

The development of the first group of unit costs is an important part of the analysis of the cause of fluctuations in operating expenses. These unit costs enable the maintenance or transportation officer to determine whether he is getting his money's worth for his expenditures for labor or material. The data from which these unit costs are derived are the same as that required in the analysis of the fluctuations in expenses described above. Consequently no additional data are required. These unit costs also provide a convenient method for comparing the cost of various operations on different roads and in different periods.

Unit Costs of Service

This second group of unit costs is used chiefly in connection with rate cases. By comparing the rate with the cost per unit of service, the adequacy of rates for different classes of service can be determined. In order to charge each service with its share of all operating expenses it is necessary to allocate to each service, its proportion of the expenses common to all services. The resulting unit costs therefore are to a certain extent theoretical and are not particularly helpful in analyzing current operations.

The separation of the expenses between freight and passenger and allied services is reported in the annual report to the commission on the basis of a formula prescribed by the commission. The total cost of freight service and of passenger and allied services is thus determined, also the unit cost of freight service per ton mile. The formula, however, does not attempt to develop costs for different kinds of freight traffic or the cost of passenger service separately from the costs of allied services.

The development of railroad cost accounting to determine the cost and profits for different classes of freight traffic and for passenger service separately from the "Allied services" has been advocated in some quarters for the purpose of enabling the commission to work out a scientific rate structure in accordance with the Hoch Smith resolution.

Unit Costs of Manufacturing

The chief pressure on the railroads to develop unit costs of manufacturing comes from the car builders and manufacturers of materials and supplies used in railroad operations. As stated above, these interests feel that the methods of cost accounting used by the railroads in determining these unit costs of manufacturing do not reflect the full cost of the article to the railroad and that misleading and erroneous comparisons are therefore made between the cost of these articles when manufactured by the railroad and the cost when purchased from outsiders. The chief difference between the railroads and the carbuilders seems to lie in the

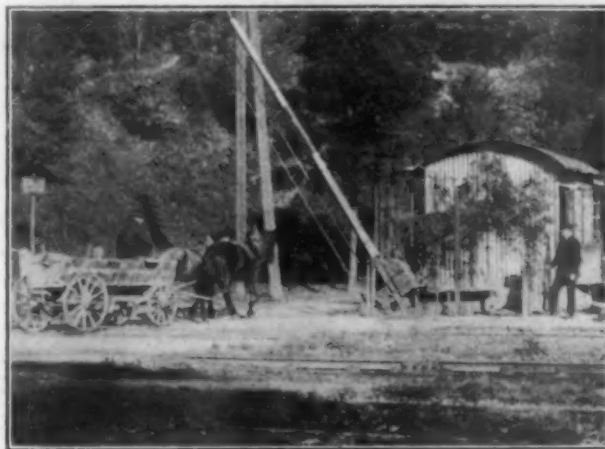
questions of apportioning the maintenance and depreciation of shop buildings and machinery and the overhead expenses, such as, supervision (M of E Account 201), general administration, and accounting to the manufacturing operations. A proportion of such expenses is added to the shop manufacturing costs by the carbuilders in determining the total cost of the product, and they feel that the railroads should also include these overhead expenses in determining the cost of their manufacturing operations.

The classification of operating expenses provides for the apportionment of overhead expenses at the shops and repair points (called "shop expense") among the various accounts to which are chargeable the directly assignable expenses of the plant so that manufacturing operations should receive their full proportion of these expenses. No provision is made, however, for the apportionment of the maintenance and depreciation of shop buildings and machinery or of supervision by general mechanical officers to the repair accounts, to say nothing of the expense of general administration and accounting. Leaving aside the distribution of the overhead there should be no question of the importance of developing the actual cost of the various manufacturing operations on a railroad on a basis properly comparable to the cost to the railroad of having these operation performed at outside shops.

Conclusions

The foregoing review of the requirements of the analyst of railroad operations and the extent to which these requirements are met by the information contained in the reports made to the Interstate Commerce Commission appears to justify some expansion of the classifications and the inclusion of additional information in the reports to the commission as outlined above.

While the writer has attempted to point out some features in which the classifications might be improved in order to provide the material for more searching analyses of railroad operations, he wishes to record his appreciation of the great progress that has already been made in standardization of railroad accounts and statistics through the efforts of the Interstate Commerce Commission and the railway accounting officers. The comments contained in this article are made entirely in a spirit of constructive criticism, with the hope that the few apparent defects in accounting practices which have been the subject of outside criticism may thereby be remedied.



A Protected Grade Crossing in Austria

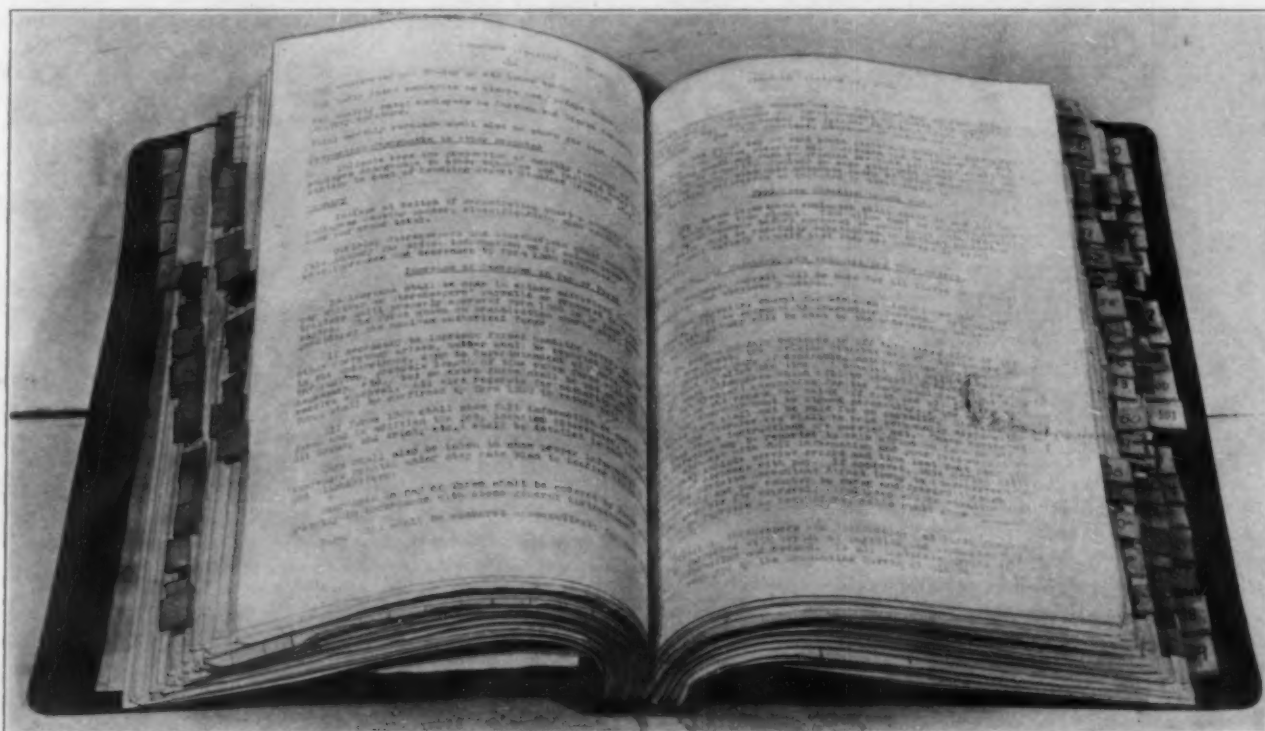
Erie Evolves Manual of Standard Stores Practice

Efficiency of service greatly augmented by workable codification of practices in this field



THE Erie believes that it has evolved a really complete and workable manual of stores practices, the kind of a manual to which anyone with a question to settle about the ordering or handling, etc., of materials and supplies can refer with some expectation of getting results. This manual was introduced four years ago and has been enlarged upon and perfected since. Prior to that time it had been the practice to formulate and issue letters, bulletins and circulars from time to time to notify storekeepers or other officers of new practices or changes in old practices, and instruct these officers as to their duties

way into an understanding of business by the usual hit and miss process. The inevitable instances of unnecessary friction arose and correspondence was often increased rather than decreased by the imperfect condition of general knowledge. It was concluded that efficient stores management required the development of an efficient scheme of producing and preserving instructions. All instructions in effect over the system relating to the handling of the operation of the supply work were, therefore, gathered in and rewritten to a uniform standard. The plan followed was to take up one general subject or problem at a time, split it up into appropriate divisions and subdivisions and prepare a circular setting forth in detail practice to be followed in all particulars and under all conceivable circumstances. Wherever the practice in-



Executive, Mechanical and Engineering Offices as Well as Storekeepers Are Furnished with Copies of the Erie's Book of Standard Stores Practice

and responsibilities in each instance. These letters, together with verbal instructions issued from time to time, and also the habits of procedure derived from customary practice, made up the rules and regulations by which the stores department was governed in its various activities or relations with other departments.

Much confusion resulted from this condition. Instructions of long standing were forgotten. Irregularities in practices as between different points developed. New members in the organization, not having at their disposal well-organized files of general instructions, worked their

involved the use of forms, copies of the forms were attached to the circular.

The method of drawing up the circulars will appear from a reference to the circular devoted to the general subject of Purchases, Stores and Supply Train Requisitions, Way Billing, etc. In this instance, the subject is divided into major divisions, of which the following are part:

- A. Requisitions prepared by storekeepers for purchase of supplies.
- B.—Requisitions prepared by division engineers for purchase of

maintenance of way material for shipment to maintenance of way officers.

C.—Requests prepared by division engineers for purchase of maintenance of way material for shipment to a maintenance of way storehouse.

D.—Requisitions prepared by superintendents for purchase of transportation supplies.

E.—Requisitions prepared by storekeepers for material to be furnished from other storehouses, etc.

The first major division of this circular is then considered under several well-selected subdivisions as follows:

1. Form to be used and copies required.
2. Preparation, dates due, signatures required.
3. Anticipated orders.
4. Forwarding, etc.

In preparing these circulars, which consist of from one to a dozen or more pages, standard size typewriter

S—Shipments from storehouses.

AS—Stock authorized and assembled.

W—Way billing.

In this form a circular is adapted for insertion in a standard binder in which the circulars are bound in the order of their numbers. They are then located by the aid of the double index kept in the forepart of the book. The first of these indexes is simply a list in numerical order of all the circulars in effect. This list, in which all the circulars are designated by the general subject or subjects covered, is virtually a table of contents. The second index comprises a list of all the topic headings in the various circulars, which are recorded in alphabetical order. The heading of the topics in each case are those derived from or designated at the end of each circular contained in the book and, consistent with the plan, each topic heading discloses the number of the circular where the practice or rule sought is to be found. This index is consulted in any search for a specific practice; thus if it is the desire to determine the rule governing hand and push car repairs, the circular is to be found by looking under Cars, Hand and Push, repairs to, or under Hand and Push Car Repairs.

THE RAILROAD COMPANY
Chicago & Erie Railroad Company
New York, Susquehanna & Western R.R. Co.
The New Jersey & New York R.R. Co.

New York, July 20, 1926.

Numbered List Covering Latest Issues of Stores Department
Standard Practices.

Number	Subject
1A	Handling of Standard Practices
2A	General Circular
3A	Notice of the Division Storekeeper & E
4A	Handling of Requisitions - Material for
5A	Handling of Purchase Invoices and Trans
6A	Annual Accounting Inventory
7A	Assembly of Cars for Sorting and Rep
8A	Handling Oil, Greases, Greases and Wash
9	Preparation of Form 101, Report of In
10A	Obsolete or Excessing Obsolete Material
11A	Accounting for Recovered, Reclaimed, M
12A	Material
13A	Test of Material Purchased to Specific
14A	Weighing and Checking Material
15A	Statement-Cost of Handling Material & C
16A	Price Book
17A	Lumber, Timber & Forest Products, Store
18A	Material Handling Stocks for Car Ward
19A	Exchange of Old Material for New
20A	Notice of Empty Cement Sacks
21A	Notice of Old Air Tools
22A	Material for Repairs to Foreign Cars or
23A	Accounting for Reclaimed Flues
24A	Signatures on 101, 101A and 101B
25A	Handling of Stock Books
26A	Material for Repairs to Erie Cars on P
27A	Notice for Removal of Company Material
28A	Unit Filing and Standard Bin Filing
29A	For Ryker Fire Stationers
30A	Requies to Park Cars, Trucks, Etc.
31A	Handling of Repairs to Electric Applie
32A	Care of Signal Oil
33A	Handling of Rejected or Defective Cast
34A	Use of Telegraph Wire
35A	Stationery Supply
36A	Shipping of Material on Engines
37A	Unloading of Cars
38A	Organization Charts
39A	Handling of Expense Accounts, 101A, B1
40A	Protection of Surveys against Switching
41	

A Page from the Table of Contents

paper is used, on which instructions are set up in type-written form and reproduced by mimeograph, using both sides of the paper. For purposes of identification, each circular is given a number and each page in a circular is numbered consecutively from the beginning of the circular to the end and also marked with a number of the circular, a practice which both prevents the mis-filing of a page and facilitates any discussion concerning it in subsequent correspondence. The last page of each circular carries the signature of the manager of stores under whose direction all of these instructions are prepared. It also carries the date of the circular, and, of particular importance, it gives a list of headings under which the circular is to be found in an alphabetical index. In the case of the circular which has already been referred to, the following index headings are designated:

- H—Handling of requisition.
I—Invoices, storehouse, forms 1829, etc.
R—Requisitions, handling of, etc.

Standard Practice No. 4-P
-11-

Make any changes necessary and forward to Division Storekeepers at Newell and Goodville, they to make similar changes in original copies.

2. Preparation, Dates Due, Signatures Required:

Separate supply train requisitions are required, in station orders, for

Expense Items

1. Handway tools and supplies (Form 101A-5-2)
2. Signals (Form 101A-1-2P)
3. Towers (Form 101A-1-2P)
4. All track fastenings, angle bars, track bolts, nut locks, track spikes (Form 101A-1-2P)
5. Signal material, carpenters and plumbers material. (Form 101A-1-2P)

(Separate requisition should also be prepared for Expense and Stock items under number 5.)

Supply train requisitions should be prepared in station order to facilitate delivery.

Originating office will retain carbon copy on Form 101A to 5. Original requisitions on Form 101A to 5 with two carbon copies will be forwarded to Superintendent for approval. Superintendent will, after approval, forward to Regional Engineer or Superintendent of Transportation for their approval. The entire carbon copy for signal engineer (as above) should be forwarded direct to him.

Supply train requisitions are due in office of Division Storekeepers at Newell and Goodville on 10th of month preceding the month in which supply train covers your territory. For east and they are due at Goodville January 10th for February delivery, etc. For west and they are due at Goodville February 10th for March delivery, etc.

3. Forwarding:

After approval by Superintendent of Transportation or Regional Engineer, original requisitions with two carbon copies will be forwarded as follows:

To Division Storekeeper, Newell, Pa. For all points Newell and west to Chicago including Buffalo and Moh Division.

To Division Storekeeper, Goodville, N.Y. For all points Newell and east to Jersey City, including New York Division.

Be sure that the Division Storekeeper at Newell or Goodville receives:

(Over)

Typical Page from Body of Book

Copies of Manual

Widely Distributed

Circulars when completed are mailed to the following

mailing	10-B	Material, Stock Books	24-C
		Inventory	
to Erie	20-A	Material to be brooded or	
		stamped	20-B
aging of	20-B	Material, Accounting for	
		Recovered, Reclaimed, Re-	
of, on	20	Issued and Returned	11-C
	20-C	Material to be carried on	
		each section	20
Completed	20-D	Material for Mail car points,	
		Notice of ordering	20-A
to Erie	20-E	Material, Scrap & Other sold	
		, on old material orders	20-C
of old	20-F	Handling of material	20-A
	20-G	Handling of Standard Practices	
	20-H	Circulars	2-A
to Erie	20-I	Wage Books	20
	20-J	Notice of V Tools for Section	
to Erie	20-K	Change	20
	20-L	Maintenance of Way Form	20-A
to Erie	20-M	Handling & Filing Checks	
	20-N	and Axes	20-A
to Erie	20-O	Notice, Repairs to, Etc.	20-B
	20-P	Minor Dr. U.S.	20-B
to Erie	20-Q	Medical Supplies	20
	20-R	Material, Form requesting	
to Erie	20-S	Material, Working Stock of	20-A
	20-T	Working, Storehouse, Etc.	
to Erie	20-U	Monthly Staff	20

Page from Alphabetical Index

officers, all of whom are provided with standard binders in which to keep them:

- | | |
|------------------------------|-----------------------------|
| Division storekeepers | Regional vice presidents |
| Electrical Engineers | Special agents |
| General air brake inspectors | Special representative |
| General manager | Stationer |
| Manager of purchases | Storehouse inspectors |
| Mechanical engineers | Storekeepers |
| Mechanical superintendents | Superintendents |
| President | Superintendents of stores |
| Regional engineers | Traveling stores accountant |

Each office inserts the circular in the proper place in the binder and inserts topic headings in their proper places in

the index. It is further provided that all store department officers getting a circular call it to the attention of any employees under their jurisdiction who should know of its contents. These employees must acknowledge the receipt of the circular and its examination by attaching their signatures to it, the latter practice being followed to insure that all individuals concerned will learn of the practice and will have less excuse or occasion for making the mistakes which the circulars in large part are prepared to avoid.

A common difficulty in the way of developing an efficient manual of rules is that of making provisions and keeping the records up to date without creating an unwieldy condition. It is one of the standard practices in the Erie stores department for each storekeeper to hold a meeting of his staff each month, which must be devoted in part to the condition of existing practices and to ways and means of improving them. These meetings and the inspections made during the year disclose where revisions or additions should be made in the standard practices, whereupon the work of revision or addition is undertaken. If the circular deals with a new subject it is given a new number and is then inserted in the manual after the other circulars. If extensive revisions are to be made in an existing circular, a new circular is also made, but it is written using the same number as before but with a letter of the alphabet added to distinguish it from previous circulars on the same subject. Thus, if the old circular was No. 20, the new one is numbered No. 20-A, and if the old circular was No. 20-A, the new circular is No. 20-B. This new circular is inserted in place of the old circular which is destroyed. Under any circumstances, the complete rule on a specific practice is always to be found without having to refer to previous correspondence.

Comprehensive in Scope

An enumeration of some of the subjects in the table of contents shows the comprehensiveness of the manual in its present state of development and also the variety of problems and operations of the present day supply organization. Thus, in this manual are found circulars (101 all told) devoted to the duties of the division storekeeper organization of personnel, handling of requisitions, handling of invoices, and transportation charges, annual inventory, assembling and sorting scrap, handling of oil, gasoline, grease and waste, the disposition of obsolete material, accounting for recovered, reclaimed, returned or released material, testing of materials purchased on specification, weighing and checking, the cost of handling material and scrap, price books, handling of lumber, timber, etc., the regulation of working stocks at car yards, exchanging old material for new, returning of empty cement sacks, returning old air tools, handling of material for repairing foreign cars, handling of stock books, unit piling and bin tagging in storerooms, fire extinguishers, repairing push cars, the handling of repairs to electrical appliances, care of signal oil, the use of telegraph wires, stationery supplies, the unloading of cars, the compilation of organization charts, the handling of expense accounts, bills for drayage, protection of workmen against switching of cars, shipments made to outside companies or individuals, the handling of brass and copper, stripping cabooses and locomotives, payments of express charges, equipment for baggage cars, standard equipment for locomotives, the handling of failed wheels, the compilation of material reports, the sale of scrap, following up for delivery or cancellation of material orders, destruction of records and accounts, the handling of wrapping on waste, accidents to employees and reports

to be made, the handling of metal drums and oil barrels, fire protection practice, loading cars with company material, accounting for oil and grease, handling consignment stock, carrying out improvement work, reporting debits and credits, handling explosives, pass rules, painting and marking of iron and steel, freight charges, branding material, filing systems, staff meetings, pricing of wheels and axles, waste paper, loading wheels, use of incandescent lamps, etc., etc.

With extensive circulars on these and other subjects and the practice in each case systematically outlined and compiled in a single binder with an alphabetical index, providing a variety of cross references and with this binder in every office for ready reference on any question in dispute, the problem of accomplishing results on the Erie has been greatly simplified.

B. & O. Train Control Approved

WASHINGTON, D. C.

THE installation of the automatic train-stop system of the General Railway Signal Company on the west end of the Baltimore division of the Baltimore & Ohio, between Baltimore, Md., and Washington, D. C., was approved by Division 1 of the Interstate Commerce Commission as meeting the requirements and specifications of the commission's order, with exceptions, in a report issued on January 24. The installation covers 36.6 miles, of which a length of 34.4 miles is double track and 2.2 miles four track; and there are 130 locomotives equipped.

The cost of this installation, as reported by the carrier, covering wayside and locomotive equipment, is as follows:

(1) Roadway Equipment:	
Total cost of roadway equipment of train control installation, less power lines and power apparatus if any, and less cost of signals or cost of change in existing signal system, less salvage.....	\$22,565.32
Total cost of power lines and power apparatus, if any, less salvage.....	None
Total cost of signal system installed in connection with train control, less salvage.....	None
Total cost of changes in existing signal system made necessary by train control, less salvage.....	11,574.23
Total all other roadway equipment costs, if any.....	3,982.49
(2) Locomotive Equipment:	
Total cost of locomotive equipment installed.....	\$155,905.10

As a result of the inspection and test, it is found that the installation meets the requirements of the commission's specifications and order, except as noted below, and it, therefore, is approved except as hereinafter indicated:

1. On September 29 and October 1, 1926, during the inspection, locomotive 5206, with train No. 21, had two false-clear failures, due to incorrect relationship obtaining between the locomotive receiver and the track inductor at signal W-231. The track inductor was found to be about $\frac{3}{4}$ inch low on account of failure to readjust it when 130-lb. rail replaced the 100 lb. rail, which was in when the installation was made. The locomotive receiver was mounted on the trailer truck and in this truck there was 3 in. vertical play at the coupler pocket. Since the distance from the kingpin at the forward end of the trailer truck frame, to the trailer axle center line is approximately three times that from the center of the receiver to the axle this receiver could vary in height approximately 1 in. with the vertical play described.

The relationship between the track inductor and the locomotive receiver must be maintained within the margin of safety prescribed by the manufacturer.

2. Non-equipped locomotives must not be operated in road service in train-stop territory unless double heading behind a locomotive the train-stop equipment of which is in service.

Locomotives with the device cut out must not be run in road service from terminals in train-stop territory unless double heading behind a locomotive the train-stop equipment of which is in service.

When necessary to operate locomotives through to terminals

with the train-stop device cut out on account of failure enroute, special protection should be provided.

On September 24, locomotive No. 1322, which was not equipped with the train-stop device was run in passenger service from Washington to Baltimore.

On September 14, the train-stop device on locomotive No. 5219 was cut out shortly after leaving Philadelphia, and on September 21, the device on locomotive No. 5211 was cut out after leaving Philadelphia on account of generator trouble. Both of these passenger locomotives were operated on through Baltimore over train-stop territory with the device cut out.

3. The reset element as located on the pilot beam of locomotive No. 5215 must be removed to a point at which it cannot be operated while the locomotive is in motion.

The Baltimore & Ohio Railroad Company is expected to comply with the following requirements as to maintenance, tests, inspection, etc.

1. Arrangements should promptly be made and consistently enforced for careful inspection and test of the train-stop equipment on all locomotives operated in train-stop equipped territory upon arrival at, and before departure from, designated inspection and repair points. This inspection and test should include all parts of the apparatus and all seals should be inspected to see that they are unbroken and that the apparatus is properly cut in for service. A daily report as to the condition of the apparatus should be made on a form provided for that purpose, and promptly forwarded by inspectors to a designated officer.

Periodic tests of locomotive train-stop equipment should be regularly made.

2. At the time of the inspection there was much evidence that the locomotive apparatus was not being adequately maintained. Grounds in the locomotive circuits were not being kept at a minimum. Locomotives should not be permitted to leave a round-house with serious grounds, and since certain crosses, or grounds, in the locomotive circuits could result in a false-clear operations, their integrity must be adequately protected at all times.

The result of the ground tests on locomotives 1445, 1443, 4072, 4132, 4209, 4433, 4467, 4447, 4601, 5087, 5045, 5083, 5210, and 352 emphasize the need of thorough maintenance of locomotive circuits.

3. The headlight and cab wiring was found to be in very bad condition on some of the locomotives. While these circuits are independent of the train-stop circuits, trouble due to grounds or crosses reacts upon the train-stop devices, as the turbo-generator is the source of energy for all locomotive circuits.

4. In several instances the loop coupler covering was found to have been damaged by rubbing. This might result in grounds and short circuits.

5. Specific instructions in regard to cutting out the device are needed. Enginemen should report in detail whenever necessary to cut the device out of service.

6. A form should be provided for and used by each engineman in reporting failures of the apparatus and any irregularities in the operation of the device.

7. In cases of train-stop failures on the road, enginemen should show full information on their work reports in order that the maintenance men at the terminals may promptly locate the trouble.

8. Locomotive receivers should be checked with an accurate, substantially made gauge, and on level track.

9. Whistles should be frequently inspected and so maintained as to insure their being readily heard by enginemen and firemen.

The apparatus on locomotive 4601 was not equipped with a whistle. This whistle is an audible warning that checks the locomotive apparatus as well as the integrity of the track inductor each time a caution or stop signal is acknowledged.

10. Steps should be taken to insure that the indicator pointer and pinion in the brake-valve head are securely attached to the shaft in all cases, so that the pinion cannot fall into the actuator housing and interfere with manual operation of the automatic brake valve.

11. At the time of the inspection about 30 per cent of the locks for the relay housing, reset apparatus and acknowledged were missing. These should be provided and used as intended.

12. On that portion of this installation where the signals are line controlled the wires leading to the track inductor should be carried through a contact point of the track relay.

13. The closing of the inductor winding in this device results in a clear operation of the device; hence a cross in the wires leading to this inductor would result in a false-clear condition. It is therefore, vital that the installation and maintenance of the track inductor circuit shall be such as to protect the integrity of this circuit.

14. The roadway installation should be checked with the circuit plans whenever changes are made to insure that the circuits are correct and the operation as intended.

15. Check should be made periodically to insure that the inductors are of proper height and gauge with relation to the rail, and free from crosses or grounds, reports being made on a

form provided for that purpose and forwarded by the inspector to a designated officer.

16. It is believed from observation during the inspection that closer co-operation between the departments maintaining the roadway apparatus and the locomotive equipment in determining the cause of interruptions would be advantageous.

17. The track inductor at signal W-1 and several other signal locations showed evidence at the time of the inspection of having been rubbed by passing train or locomotive equipment. Oral advice has been received to the effect that corrective measures are being taken. This should be carefully followed through.

18. It is suggested that information of interest to train and enginemen with regard to this installation be included in the current operating time tables.

Freight Car Loading

WASHINGTON, D. C.

REVENUE freight car loading in the week ended January 15 amounted to 950,045 cars, an increase of 18,310 cars as compared with the corresponding week of last year and of 16,023 cars as compared with 1925. The increase was due to the heavy coal loading, which amounted to 229,407 cars, or 36,882 cars more than were loaded in the corresponding week of last year. Merchandise loading also showed an increase of 734 cars but all other commodity classifications showed reductions. The Northwestern and Central Western districts showed decreases as compared with the corresponding week of last year and the year before and the Southwestern district showed a slight decrease as compared with last year, but the Eastern, Allegheny, Pocahontas and Southern districts showed increases as compared with both previous years. The summary, as compiled by the Car Service Division of the American Railway Association, follows:

Districts	1927	1925	1925
Eastern	222,738	211,255	214,448
Allegheny	188,871	186,347	185,916
Pocahontas	58,411	56,740	49,020
Southern	149,422	143,269	144,563
Northwestern	109,098	114,006	120,969
Central Western	142,916	141,166	150,950
Southwestern	78,589	78,952	68,156
Total Western districts	330,603	334,124	340,075
Total all roads	950,045	931,735	934,022
Commodities			
Grain and grain products	45,306	49,244	51,678
Live stock	33,159	34,569	38,517
Coal	229,407	192,525	209,231
Coke	11,972	17,735	13,749
Forest products	65,159	65,901	73,449
Ore	8,562	9,759	10,515
Misc. L. C. L.	242,657	241,923	235,656
Miscellaneous	313,823	320,079	301,227
January 15	950,045	931,735	934,022
January 8	940,800	907,622	934,170
January 1	740,348	741,560	767,098
December 25		772,590	701,061
December 18		950,575	969,738
Cumulative total, 3 weeks	2,631,193	2,580,917	2,635,290

Car Loading in Canada

A seasonal increase of 1,656 cars over the previous week was shown in the revenue car loadings at stations in Canada for the week ended January 15. Compared with the same week last year there was an increase of 2,399 cars.

Commodities	Total for Canada			Cumulative totals to date	
	Jan. 15, 1927	Jan. 8, 1927	Jan. 16, 1926	1927	1926
Grain and grain products	10,821	12,390	9,284	23,211	21,714
Live stock	2,218	2,367	2,139	4,585	4,899
Coal	6,561	6,881	5,924	13,442	13,090
Coke	371	390	390	761	982
Lumber	2,655	2,207	2,883	4,862	5,556
Pulpwood	4,528	3,219	3,998	7,747	7,467
Pulp and paper	2,247	2,021	2,703	4,274	5,706
Other forest products	3,140	2,222	3,444	5,362	6,248
Ore	1,408	1,340	1,468	2,748	3,056
Merchandise, L. C. L.	14,642	14,751	14,078	29,393	29,871
Miscellaneous	10,537	9,678	10,418	20,215	21,356
Total cars loaded	59,128	57,472	56,729	117,600	119,945
Total cars received from connections	33,431	30,341	33,539	63,772	68,394



One of the 357.5-Ton Motor-Generator Locomotives

Electric Locomotives for the Great Northern

Features of design of the recently delivered Baldwin-Westinghouse, motor-generator locomotives

By C. E. Baston

Railway Equipment Engineering Department, Westinghouse Electric & Manufacturing Company

TWO motor-generator electric locomotives for the Great Northern have been completed and shipped to their destination from the East Pittsburgh works of the Westinghouse Electric & Manufacturing Company. They will be placed in operation between Skykomish, Wash., and Cascade, a distance of 24.6 miles. This section of the line is on the western slope of the Cascade mountains and has many curves, and a grade against eastbound traffic averaging two per cent, the maximum being 2.2 per cent. The line passes through numerous tunnels the longest of which is the Cascade tunnel, $2\frac{3}{4}$ miles long, located near the summit of the mountains.

The locomotives operate from an 11,000-volt, 25 cycle single phase trolley. The alternating current is transformed and converted into direct current for the traction motors by the assistance of the transformer and motor-generator set on the locomotive. The use of the motor-generator locomotive minimizes the copper and power losses, permits unattended transformer stations, light overhead trolley construction and a wide range of flexibility in the control of the locomotives.

The locomotives were designed and constructed jointly by the Baldwin Locomotive Works, Philadelphia,

Pa., which built the mechanical parts and the Westinghouse Electric & Manufacturing Company, East Pittsburgh, Pa., which supplied and installed the electrical

Principal Dimensions and Specifications of Baldwin-Westinghouse Motor-Generator Locomotives

Weight on each driving axle	68,700 lb.
Weight on each idle axle	41,350 lb.
Length between coupler knuckles	94 ft. 4 in.
Total wheel base	78 ft. 6 in.
Rigid wheel base	16 ft. 9 in.
Height over pantograph locked down	15 ft. 10 in.
Height over cab	14 ft. 2 in.
Width over cab sheets	10 ft. 5 in.
Width over grab handles	11 ft. 0 in.

RATINGS (WITH FORCED VENTILATION)

	Hour	Continuous
Horsepower	4,330	3,660
Traction force	112,500	88,500
Miles per hour	14.4	15.5
Amperes per motor	750	625
Maximum traction force	50.4 per cent adhesion	277,000 lb.
Maximum safe speed		37.5 m.p.h.

apparatus. Each locomotive consists of two cabs or motive power units operating in multiple and connected by means of a draw bar. The weight of a complete locomotive is 357.5 tons of which 274.8 tons are on the drivers. Each unit of a locomotive is complete in it-

self and can be operated independently of the other.

The wheel arrangement is the 1-D-1 classification which corresponds to 2-8-2. Each unit has a box-type cab which is mounted solidly on the locomotive frame and has an operating compartment at one end separated from the equipment compartment by a bulkhead with doors opening into each side aisle. Provision has been made at the opposite end of the cab for a second control stand should it be found desirable to operate a unit regularly as a single cab. To add rigidity and distribute the weight, a central integral casting is carried on the locomotive frame on which are mounted the motor-generator set, the transformer, the air compressor and other heavy equipment.

Converting Machinery

Current is collected from the overhead wire by two pantographs on each unit, only one of which is necessary, however, the other being held as a spare. All



Engineman's Position. Window Is Covered by Photographer's Screen

four pantographs are connected in parallel by a high tension bus line. Power is conducted from the bus line through an oil-insulated, circuit breaker to an air-blast transformer where it is transformed to a lower voltage and delivered to the synchronous motor of the motor-generator set. The motor generator set is a two-bearing machine composed of a synchronous motor driving a 1500-kw., 600-volt, direct-current generator. A 125-volt, 75-kw., direct-current machine overhung on the synchronous motor bracket is used to furnish excitation for the various machines and power for some of the auxiliaries. The generator bracket carries another direct-current generator used for exciting the fields of the traction motors when regenerating and when high speed is desired with heavy loads.

Each main axle is driven by a single, axle-hung, direct current, series type, traction motor through a solid

pinion on each end of the armature shaft meshing with a flexible gear mounted on the hub of each driving wheel. The four traction motors of each unit are connected in parallel, but any one or all can be entirely isolated when necessary.

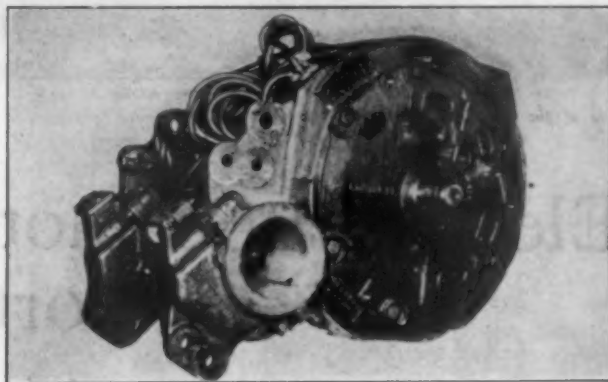
Traction Motors

Two blowers used for ventilating the traction motors and one for ventilating the transformer are driven by single phase induction motors. To start these motors, the main synchronous motor is equipped with a secondary winding which is connected with the main transformer to give three phase power. When the synchronous motor is under load this three phase connection is broken and the motor operates as a single phase machine.

Control Apparatus

Compressed air for the control and air brake systems is supplied by a two-stage compressor having a capacity of 150 cu. ft. of air per minute and driven by a direct-current, series motor fed from the main exciter.

A 125-volt, 238-ampere-hour, lead type, storage battery supplies power for starting the main motor-genera-



One of the Traction Motors

tor set and, during interruptions of the trolley circuit, for running the compressor and for control and lights.

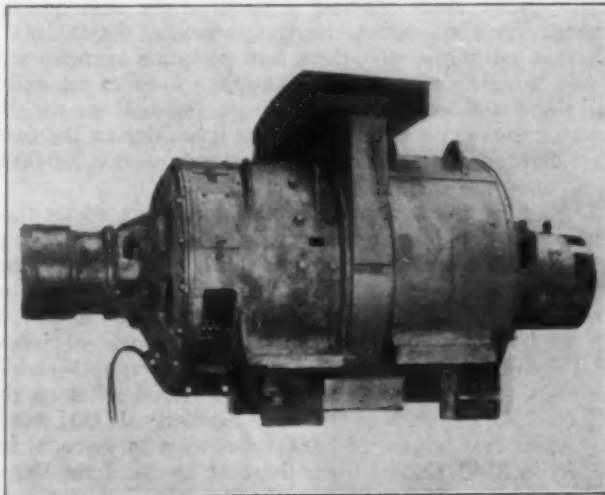
The control is the Westinghouse type HBFR electro-pneumatic type. Acceleration is governed entirely by field control of the main generator and traction motors. Thirty positions of the controllers for both the main generator and the traction motor fields are provided. The transition from series to separate excitation of the traction motors or vice versa can be made at will without any change in tractive force.

Features of Design

The locomotives are capable of hauling a 1000-ton trailing load between Skykomish and Tye at a speed of 19.8 m.p.h. and by using a second locomotive as a pusher, a 2800-ton trailing load can be hauled at 15.4 m.p.h. over this same section.

In case of a change in trolley voltage or grade which would overload the locomotive, the load is automatically reduced and an indication given to the engineman. Stability of the synchronous motor is insured by automatically increasing the excitation when there is a possibility of the motor pulling out of synchronism. Momentary interruptions of power are obviated by always operating with two pantographs raised, but should they occur, a special relay is provided which removes the load and reconnects the main motor to the starting connections until power is restored when it is automatically synchronized and the load re-applied.

Balancing of the load on the two units is taken care of by bus line connections between the main exciters which equalizes the voltages being applied to the main generator fields. The traction motor circuits are so adjusted that they divide the load equally with both the series and separately excited connections. The traction motors are grounded only through a ground detector which indicates at all times the condition of the circuits and in case of trouble indicates which side of the circuit is grounded. Before a failure can result a second ground must occur before the first ground indicated has been removed. Should a ground be indicated by the ground



Motor Generator Set, One of Which Is Installed in Each Cab. The Set Consists of a Synchronous Motor, d-c. Generator, Field Exciter and Main Exciter

detector, further trouble may be prevented by opening the motor cutout switch of the motor involved which will isolate the motor entirely. The main generator is protected against a short circuit in the motor by a fuse in each motor circuit. Meters are provided to enable the engineman to determine the operating conditions of both cabs.

The ability of this type of locomotive to deliver its full rated horsepower over a wide range of speed and to employ regeneration almost to standstill makes it adaptable to a wide variety of requirements.

Hearings on Consolidation Bill

WASHINGTON, D. C.

HEARINGS on the railway consolidation bill introduced by Senator Fess were continued before the Senate committee on interstate commerce on January 20 and 25, although only a few members of the committee were in attendance. Alfred P. Thom, general counsel of the Association of Railway Executives, completed his statement on the bill on January 25, urging the importance of having legislation more effective than the present provisions of the law relating to consolidation and suggesting some amendments to the bill. It was arranged that Ben B. Cain, general counsel of the American Short Line Railroad Association, should testify as to the views of the short lines on the following day, and it was planned to hear W. H. Williams later, but no hearing was held on January 26 because of the absence of a quorum.

At the hearing on January 20 Senators Wheeler,

Howell and Sackett raised questions as to why the Interstate Commerce Commission should not have power to require a consolidation of certain railroads which it believed would be in the public interest, even if the railroads concerned did not want it, and all three indicated their belief that the commission should have such power.

Mr. Thom replied that that is the line of cleavage in the whole consolidation argument and that he had proposed to discuss that point later. It raises a great many questions, he said, in the first place as to the power of Congress. Congress would have no power, for example, to say that the Great Northern should acquire the St. Paul and pay for it. It could condemn the two roads and then combine them, but that would be government ownership. It could, however, say to the Great Northern and Northern Pacific that they could not consolidate unless they assumed the burden of taking in certain other properties, Mr. Thom said. When Senator Wheeler remarked that it looked as if the bill had been drawn for the interest of the railroads instead of in the public interest, Mr. Thom said that he believed the public interest would be subserved by beginning the process of consolidation in a permissive way.

Mr. Thom also argued that a consolidation approved by the commission as being in the public interest ought not be held up awaiting a settlement of the rights of minority stockholders who might dissent, but that they ought to be relegated to the courts. The provision in the bill that the commission shall not consider or pass upon the terms offered the security holders, he said, had been inserted in the bill by the legislative counsel of the House committee, but he suggested an amendment to give the commission power to prevent such terms being made as to impose an unreasonable burden on the public. Mr. Thom also said that a stockholder ought to be given an absolute right to have his stock purchased at a fair figure, but that a single "striking" stockholder, of the kind of which there are some conspicuous examples in the country, ought not to have the power to hold up an entire consolidation plan by an injunction suit over his private rights.

The largest question involved, Mr. Thom said, is as to whether consolidation shall be compulsory or permissive. The railway executives, assuming that Congress and the President have adopted a policy of consolidation, have reached the conclusion that the only way to make such a policy effective is by a permissive plan but something more effective than the method provided by paragraph 2 of section 5 is needed. Both Mr. Fulbright, representing the National Industrial Traffic League, and Mr. Cain, representing the short lines, ask that that section be repealed, Mr. Thom said, and he would not oppose such a repeal if provision is made that proceedings pending under it shall proceed to a conclusion.

Mr. Thom argued that it would be more sensible to take advantage of the plans which have been worked out voluntarily by the railroads to get some progress made toward consolidation, subject to the veto or modification of the Interstate Commerce Commission, than to attempt to legislate now for the situation which may exist later. He pointed out that the Cummins bill provides for a permissive system for three years but attempts to legislate now for the situation which may exist then, and that while it represents a sort of middle ground between permissive and compulsory consolidation it attempts to provide pressure by taking away earnings above 6 per cent of the roads not consolidated, which would probably cause delays by litigation as to whether railways are not entitled to more than 6 per cent. Mr. Thom also pointed out that legislation is needed because the Interstate Commerce Commission

has recommended that the present requirement that it prepare a complete consolidation plan be eliminated as impracticable.

Senator Hawes of Missouri asked that the committee hear W. H. Williams, chairman of the Missouri Pacific and of other lines, before taking action on amendments to the bill, because he understood that Mr. Williams had views somewhat at variance with those of Mr. Thom. He said that Mr. Williams might be present on January 28 if his health would permit.

Great Lakes-to-Ocean Waterways Analyzed

WASHINGTON, D. C.

THE Department of Commerce has made public a report on some economic aspects of the Great Lakes-St. Lawrence, Lakes-to-Hudson, and "All-American" waterway projects, dealing with the potential traffic available for movement by any of the proposed routes, the possibility of lower freight rates to attract traffic from existing channels, the possibility of ocean-going vessels entering the lakes trade via any of the proposed ship channels, and the economic benefits to be derived from the projects. The report is by E. S. Gregg, former chief of the transportation division of the Department of Commerce, and A. Lane Cricher, assistant chief of the division.

It is estimated that from 19,000,000 to 24,000,000 long tons of foreign and domestic cargo (12,000,000 to 17,000,000 being imports and exports) are available for movement via a Great Lakes-St. Lawrence ship waterway, and 15,000,000 to 20,000,000 tons of foreign, inter-coastal, and coastwise cargo (8,000,000 to 13,000,000 being imports and exports) are available for movement via a Lake Ontario-Hudson or an all-American ship channel. In addition, considerable local and intermediate traffic would be stimulated by a Lakes-to-the-Hudson, or an all-American waterway, which may be of sufficient tonnage to equalize the traffic estimates for all routes.

No attempt has been made to determine the amount of the potential traffic which actually might move by any of the routes, nor has an estimate been made of the total possible savings which might result from the construction of any route. The traffic estimates in this study are said to be conservative, based upon the average movement of commodities from 1921 to 1924, and do not account for increased transportation requirements that may be expected by the time any of the projected waterway routes would be completed.

It is estimated that wheat, one of the commodities likely to move in the greatest volume, and one for which it is fairly easy to make a reliable estimate, could be carried from Duluth or Chicago through the proposed St. Lawrence shipway to Liverpool for 8 to 11.2 cents a bushel, as compared with the cheapest present combination of rates of 17.6 cents, and from the same ports to the same destination through the proposed Lakes-to-Hudson or all-American 27-foot ship channels for 9 to 12.9 cents per bushel. Grain might be moved from Duluth to Liverpool through the proposed St. Lawrence deeper waterway at a saving of from 36.4 to 54.5 per cent of the present lowest combination of rates, and via the proposed Lakes-to-Hudson or all-American 27-foot waterways at a saving of from 27.6 to 48.9 per cent of the present lowest costs.

Approximately seven out of every eight freight liners and tramps engaged in foreign commerce entering or

clearing our seaports can navigate a 27-foot channel suitable for vessels of 25-foot draft; only two in every hundred require a channel of more than 30-foot depth, the report says.

"This country," the report continues, "can never have too much economical transportation. One of the greatest problems our grain-producing states have to face is the transportation of surplus products to ocean ports for shipment abroad. In the interest of our economic advancement and in order to accommodate an increase of 40,000,000 in population in the next 25 years we must take every advantage to conserve and develop our latent facilities for transportation. If the ton-mileage of our railways increases one-half as much in the next quarter century as it has during the past, instead of 400,000,000,000 ton-miles of traffic, these transportation agencies will have to carry over 525,000,000,000 ton-miles annually. If the ton-mileage should increase one-half as rapidly during the next quarter century as it has during the past, the demand upon our carriers will exceed 800,000,000,000 ton-miles in 1950.

"Railway transportation is naturally more costly than transportation by barge, river, lake, or ocean. Broadly, based upon actual going freight rates, it costs the shipper approximately \$17 to \$25 to transport 1,000 bushels of wheat 1,000 miles on the ocean (based upon a cost of from \$60 to \$90 to transport 1,000 bushels of wheat 3,600 miles between New York and Liverpool)—while it costs from \$20 to \$30 to carry it 1,000 miles on the Great Lakes, Duluth to Buffalo. Similarly, 1,000 bushels of wheat may be carried 1,000 miles via a barge canal for \$110 to \$140 (based upon the cost by the Erie Barge Canal of from \$55 to \$70 for the 500 miles between Buffalo and New York City). On the Mississippi River it would average approximately \$65 to transport 1,000 bushels of wheat 1,000 miles (based upon a charge of \$70 for the 1,150 miles from St. Louis to New Orleans). By rail 1,000 bushels of wheat may be shipped 1,000 miles for from \$175 to \$225. Rail rates on 1,000 bushels of wheat range from approximately \$90 for the 400 miles from Buffalo to New York, to \$225 to \$250 for the 1,350 miles from Kansas City to New York, and \$140 for the 700 miles from St. Louis to New Orleans.

"In the interest of national transportation this country should make the best possible use of the water transportation facilities which nature has provided. We are rapidly improving our inland waterways. The Ohio River development from Pittsburgh to Louisville is now completed and is carrying an increasing traffic. Development of that portion from Cincinnati to St. Louis and of other segments of the Mississippi trunk system is contemplated. This development will link up the entire south, central, and southern commercial sections with a barge waterway. There is a barge canal connecting the Great Lakes with the Hudson river which makes possible traffic between the Great Lakes and New York City.

"While we are making rapid strides in rail, river, and canal transportation it is all the more necessary where it is practicable and feasible from an engineering viewpoint, that, if it be economically advisable, we improve our waterway possibilities where transportation costs are the cheapest and where the benefits derived will be the greatest."

IN CANADA, according to the report of the Board of Railroad Commissioners, the number of persons killed at highway grade crossings of railroads in 1926 was 127; total injured, 367. The number of crossing accidents was 297 in which 229 automobiles were involved. The total number of passengers killed on Canadian Railways in 1926 was 22; and of injured, 334.

Henry Goslee Prout

COLONEL HENRY G. PROUT, for 16 years (1887-1903) editor-in-chief of this journal, and a distinguished civil engineer in varied fields, died at his home in Summit, N. J., on January 26, after an illness of many months. He retired from active business in 1915 and had lived quietly at Nutley, N. J., for most of the time since then, his biography of George Westinghouse, published by Scribners four years ago, being the only important work that he had done in the last ten years.

Henry Goslee Prout was born at Falls Village, Fairfax County, Virginia, on August 10, 1845, the son of William Prout and a descendant of Timothy Prout who came from Biddeford, Devonshire, England, and landed in Boston in 1644. In his infancy the family moved from Virginia to Greene County, New York, and later to Berkshire County, Massachusetts, so that his boyhood was spent wholly in northern surroundings. He had some schooling at Stockbridge (Mass.) Academy and some private tutoring at the hands of the Reverend Franklin Le Barron; but not much systematic education prior to the civil war. In 1863 at the age of 18, he enlisted in the 57th regiment of Massachusetts volunteers, Company D, and was with the Army of the Potomac in the Wilderness and later campaigns. He was mustered out in 1865; and the following two years appear to have been filled with a combination of adventure and study.

He entered the University of Michigan in 1867, and the next four years evidently were years of intense work and activity. Two of the summer vacations were spent on a government survey of the Great Lakes; and he left college before the close of his senior year to engage in other government surveys in the Rocky Mountains. In his second year there he commanded an expedition of reconnoissance in southwestern Colorado and ran an unbroken stadia line of 1,000 miles, crossing the Continental divide seven times, incidentally becoming an accomplished astronomer. This experience with the Military Division of the Missouri of the United States Army brought Prout to the notice of General William Tecumseh Sherman, then at the head of the army and previously in command of the Military Division of the Missouri; and

he was one of six young men who, at the request of the Khedive of Egypt, were recommended by Sherman for the Khedive's military service—and Prout went out as Major of Engineers. He remained there four and a half years, 1873-78, and rose to the position of Governor of the Equatorial Provinces, retiring with the rank of colonel on the General Staff.

On his return to America, Prout entered the employ of the Toucey & Buchanan Interlocking Switch Company of Harrisburg, Pa., (June, 1878). This company, which later became one of the constituents of the present Union Switch & Signal Company, manufactured Toucey &

Buchanan's interlocking (the first appearances of which in railroad history was in a description of an installation at Spuyten Duyvil, N. Y., in the *Railroad Gazette* of October 16, 1875) and Prout had charge of installing like apparatus on the Third Avenue Elevated Railroad, New York City. He was thus a pioneer in the business which engaged his attention, 25 years later, as an officer of the Union Switch & Signal Company. He remained with the Toucey & Buchanan Company but a year or two, his next venture being in the printing business with the firm of Atkin & Prout, Chambers Street, New York, who printed the *Railroad Gazette* for several years before Prout became editor.

On the assumption of the editorship of this paper (then the *Railroad Gazette*) on March 1, 1887, Colonel Prout became a leading spirit in the railroad world, an influence that continued to expand throughout his service in that capacity.

From November 7, 1895, to March 9, 1903, he was a member of the board of directors of the corporation, but resigned as both editor and director in February, 1903, to accept the office of first vice-president and general manager of the Union Switch & Signal Company (Swissvale, Pa.), a position which meant not merely the operation of a shop and the selling of signals, but also that of an adviser in Westinghouse interests generally. He resigned in July, 1914, after the death of George Westinghouse and three months after he had been elected president of the company. In November of the same year he became president of the Hall Switch & Signal Company, of Garwood, N. J., which office he held for ten months.



Henry Goslee Prout

only, thereafter giving up active business pursuits.

Colonel Prout had had two separate careers (not including his youthful experience as a soldier in the civil war) and was a world citizen in a very comprehensive sense. When in the service of the Khedive, he was associated with General Charles George Gordon, ("Chinese" Gordon) a great world figure. There, in a way isolated from the world, he, like his American, English and French fellow officers in the army in Africa, gained a broad outlook on life not to be acquired except by some such detachment.

His next important move was the assumption of his editorship here. The railroad life of America is, and was, a sufficiently broad field for any man to adopt as the setting for his career, and the editorship of the leading paper in that field is not lacking in opportunities and incentives for the ambitious spirit; but Prout's outlook was even broader than his field, for he saw world-wide conditions as clearly as he saw things nearer by and he was always equal to any problem or emergency. Though not one of the owners of the paper, he was no mere agent or worker; he was a real leader of public opinion. In fact, he was without doubt the greatest technical paper editor of his day; and to his leadership may be attributed much of the progress in railroading in America at that time. While the phrase "Be a motor, not a trailer," a motto of this institution now, was coined after Prout's time, nevertheless it was actually practiced by him, tempered always with conservatism. There are few living now who know that to an editorial written by Colonel Prout and read on the floor of the United States Senate was due the selection of Panama instead of Nicaragua as the route for the Isthmian Canal. His leadership at the time was attested by the following cablegram from Bunau Varilla, the still well-known French Engineer, to Colonel Prout, sent from Paris, March 18, 1903: "On the day of final victory Panama I remember gratefully the support given to the cause of truth by your most important technical paper and the share you have in the triumph."

The products of his pen reveal Prout's love of brevity and simple English. One of his closest companions was a copy of the Book of Common Prayer of the Protestant Episcopal Church, parts of which he read and reread continually because of the simplicity of the language. Then, too, his natural calmness and reputation for conservatism are reflected in a memorandum to a young member of the editorial staff, now a professor in one of our colleges—"Keep cool, and remember the eloquence of understatement."

Colonel Prout's leadership in American professional life was based not only on his knowledge of and prominence in the railroad field, but also on his broad professional experience and his ability and skill as a linguist and a public speaker. He had lectured at a dozen prominent technical schools in the Eastern and Central States and he wrote innumerable magazine articles. He received the honorary degree of Master of Arts from Yale University in 1902; and in 1911 Michigan University made him Doctor of Laws.

His service as chief operating officer of the Union Switch & Signal Company for the dozen years following his railroad editorship as well as his short term as the chief executive officer of the Hall Switch & Signal Company were largely mercantile; but his ability in that direction was a product of his engineering and diplomatic knowledge and experience gained in his earlier tasks, so that these later activities may perhaps be classed as in a sense a supplement to his previous railroad work. As editor, he met railroad officers of high and low degree on all sorts of subjects; as manufacturer, he met

a restricted class of officers and confined himself to one subject—the importance of the duty of combining the highest public service with the most enlightened business selfishness; the duty of adopting the most modern signals and thereby making train operation safer for the public, while at the same time improving the economy of operation from the standpoint of the railroads' treasury.

But, whatever his business duties, or whatever kind of work engaged his mind at any given time, the impression produced on those with whom Prout was associated always was that he was first a gentleman; not that he was in any sense above his work, but he never buried himself therein. He was a scholar, and his studious habits and spirit of investigation and discovery knew no abatement. His biography of George Westinghouse, which he wrote in 1921, is perhaps one of the best indices of the character and spirit of the man. It is a literary monument, while at the same time a model of scientific accuracy and comprehensive judgment. Westinghouse was a great personality—over and above any technical talents as an engineer—and the biographer, in delineating his greatness, unconsciously gave the reader some very good views of himself. Prout, in short, is to be classed as a finished scholar, a gentleman of conservative tastes and a business man of marked ability. Some of his younger friends at times forgot his genius as an engineer, so all-embracing was his general knowledge and conversation. A sketch written by his life-long friend and associate, William H. Boardman, in 1914, contains a very appropriate appreciation:

"The sum of it is that he is inspiring. He has such a fund of general and specific information, such a love of truth and thoroughness, such a scorn for lying and carelessness, such a ready quality of human sympathy, that, with a faculty for memory cultivated and quickened by editorial habit, he can subordinate himself and skillfully direct conversation so as to draw out others."

He is survived by his wife, who was Gabriella Perin; two sons, Henry B. and Curtis, and three daughters, Miss Elizabeth Prout, Mrs. Pierpont V. Davis and Mrs. Paul G. Tomlinson.

Prout's Life in Egypt

Colonel Prout was so modest in talking about himself, and his life in Egypt was in such large degree unique, that the history of 1873-78 may properly be dwelt upon a little more at length. From reminiscences of Charles P. Perin, his brother-in-law, and the late William H. Boardman, former president of the *Railroad Gazette*, now the Simmons-Boardman Publishing Company, the following paragraphs are gathered:

In the service of the Khedive as Major of Engineers, Prout's first year was in the Delta and on the Asiatic frontier. It covered geodetic and topographical engineering, studies for a hospital and a military prison and repairs of fortifications, and the administration of the Engineer Bureau at the War Office (Cairo). In all of this he had independent command, as was the case with all of his subsequent service. After the first year he went to the Soudan in command of an expedition to Kordofan and Darfour; and thence he was sent to the head of the Nile as governor general of the Provinces of the Equator. This was at the request of General Gordon, whom Colonel Prout succeeded in that command when Gordon came down to Khartoum as governor general of the Soudan. The Provinces of the Equator were put under the Soudan and thus Prout served under Gordon; but Lado, the capital of the Provinces, is 10½ deg. south of Khartoum, or 1,010 miles as the Nile flows, and communication was not frequent. The northern frontier of the

Provinces was the tenth degree of latitude, and the southernmost station was in latitude $1\frac{1}{2}$ deg. north, between the Victoria and the Albert Lakes.

This picturesque episode in Colonel Prout's life abounds in thrilling adventure and his stories of Gordon were of absorbing interest. General Stone, the Chief of Staff, writing officially of the Kordofan expedition says that it (Prout's report) "evidences how much can be done by an able, instructed and honest-minded officer in those regions, when that officer thinks less of the risks and discomforts around him than of the accomplishment of duty for duty's sake." Gordon's opinion is shown by the fact that he had Prout promoted twice, and at the end recommended him for the rank of Pasha (a colonel is a Bey) and offered him the governorship of either of two Provinces if he would stay in service.

When Prout marched across the desert from Suakim on the Red Sea, to Berber on the Nile, he was struck by the strategic and commercial value of that route for a railroad and made a careful reconnaissance and barometric profile, and in a report to the War Office he recommended that a railroad be built there. Had that railroad been built within a few years after Prout's report it is quite possible that the Mahdi's rebellion would never have taken place, Gordon would not have been besieged at Khartoum and the Soudan would not have been lost.

Prout's work in the Provinces of the Equator was chiefly administrative. He had 3,000 soldiers under him, scattered over a vast territory, and was (to quote Gordon's order) "supreme over finance, civil and military affairs." He had not a single American or European officer except Emin Effendi (later Emin Pasha), who had charge of medical service and stores. His most interesting engineering work was to carry an 80 ft. screw steamer about 60 miles, through the woods, over broken country and erect it at Dufli, whence it had clear navigation into the Albert Nyanza. There were no roads, no vehicles, and the only beasts of burden were naked savage negroes. The boiler was hauled on runners, but all the other parts were carried by men. This was the steamer in which Emin went to meet Stanley at the time of the famous "rescue."

The burdens incident to tropical fever and other distresses were always passed over lightly in Prout's narratives (as also were the tragic features), but he had his share of them. Returning down the Nile when too sick to walk even a short distance, he rode for days (past the unnavigable parts of the river) lying on a litter on the back of a camel. But even here his courage was inextinguishable; he read "Daniel Deronda" and, the book being too heavy for his weak hands, he tore off and threw away each leaf as he finished reading it! But Gordon was always watchful, as would be a father, and, getting Prout nursed back to partial health, he sent him to London to buy steamboats for Nile navigation; and while there, still weak, Prout received from Gordon a telegram "ordering" him home to America, to get married; and this he did.

Prout and his bride returned to Cairo, where they received signal honors from the Khedive. His work in Egypt, however, was thereafter uneventful.

MICHEL MAGIFF, superintendent of car service and telegraph of the Central Vermont, has completed a term of 60 years' continuous service with that road, and on New Year's day was presented by officers of the road with a watch, the presentation being made by President E. C. Smith. Mr. Magiff was born at Verplanck, N. Y., and, beginning as a telegrapher, was train dispatcher for many years.

D. & H. Train Control Approved

WASHINGTON, D. C.

THE installation of the automatic train-stop system of the General Railway Signal Company on the Champlain division of the Delaware & Hudson, under the order of the Interstate Commerce Commission of June 13, 1922, has been approved by Division 1 of the commission as meeting the requirements of its orders and specifications, with an exception. The installation extends from Rouses Point, N. Y., to Whitehall, N. Y., 111.65 miles of single track and 4.6 miles of double track, and there are 66 locomotives equipped.

The cost of this installation to date, as reported by the carrier covering wayside and locomotive equipment, and subject to possible unimportant revisions, is as follows:

Roadway Equipment:	
Total cost of roadway equipment of train control installation, less power lines and power apparatus, if any, and less cost of signals or cost of change in existing signal system; less salvage	\$80,695
Total cost of power lines and power apparatus, if any, less salvage	None
Total cost of signal system installed in connection with train control, less salvage	None
Total cost of changes in existing signal system made necessary by train control, less salvage	22,428
Total all other roadway equipment costs, if any	2,108
Total cost of roadway installation	\$105,231
Locomotive Equipment:	
Total cost locomotive equipment installed	93,060
Total cost	\$198,291

The exception is as follows:

1. Non-equipped locomotives must not be operated in road service in train-stop territory unless double heading behind a locomotive the train-stop equipment of which is in service.

Locomotives with the device cut out must not be run in road service from terminals in train-stop territory unless double heading behind a locomotive the train-stop equipment of which is in service.

When necessary to operate locomotives through to terminals with the train-stop device cut out account failure enroute, special protection should be provided.

The Delaware & Hudson Company is expected to comply at once with the following requirements, as to maintenance and tests, inspections, etc.:

1. Instructions, reports and records in effect at the time of inspection (or others equally comprehensive), relative to tests of locomotive and wayside apparatus, cleaning periods, and seals, should be consistently observed and continued; all reports to be made on forms provided for that purpose and regularly forwarded by the inspectors to a designated officer.

At the time of the inspection, the locomotive apparatus was not being maintained as it should have been, notwithstanding the fact that instructions for maintenance were in detail and officially in effect. Some of the receivers or their adapters were loose, on some of the locomotives the washboard teeth were not exactly parallel, on others the adjusting screws had not been tightened and locked after the receivers were adjusted against the washboard. Some whistle valve mountings were also found loose.

2. The proper relation between locomotive receivers and the rail should be rigidly maintained through the use of accurate gauges.

3. Enginemen should show on work reports as complete information as possible covering all cases of train-stop failures in order to assist terminal maintenance men in locating the trouble.

4. It is suggested that careful consideration be given to the question of so locating the whistle of the train-stop device on locomotives of the double-cab type, or having it of such tone and volume, that it can be distinctly heard by both the engineer and the fireman.

5. It is understood that those headlight generators, which are rated at 500 watts, are all to be replaced with machines of adequate capacity within reasonable time.

6. On August 10th, a potential false clear failure occurred at Signal No. 137.3, due to a short circuit in the inductor winding caused by defective splice in the magnet wire. The manufacturers assure us that they have discontinued making splices in the magnet wire used in winding inductors, and both representatives of the manufacturers and those of the carrier state that tests are being made of all the inductors in this installation to insure that they are all right.

As was pointed out in the report of March 17, 1926, following

the preliminary inspection of the 20-mile portion of this installation between Plattsburg and Rouses Point, N. Y., the closing of the inductor winding results in a clear operation of the device; hence a cross in the wires leading to this inductor would result in a false clear condition of the inductor. The installation and maintenance of the track inductor circuit must be such as to protect the integrity of this circuit.

7. A number of inductors showed signs of having been scraped as by the doors of hopper cars, spreaders, etc. This serves to emphasize the necessity for maintaining these inductors so securely in place that drop doors, spreaders, flanges, plows, etc., cannot displace them. Periodical inspection and test of all roadside train-stop equipment and circuits should be made on a form provided for that purpose, being forwarded by the inspectors to a designated officer.

It is understood that since the inspection was made arrangements became effective under which the integrity of the train-stop apparatus on all locomotives entering train-stop territory is checked as to integrity by employees provided for that purpose at both Rouses Point and Whitehall; these locomotives having been given a previous test at Montreal, or Colonie, as the case may be.

Waterways Corporation Asks for Joint Rail-Water Rates

HEARINGS were held before Examiner Howell of the Interstate Commerce Commission on January 20 at Chicago on two complaints of the Inland Waterways Corporation which operates the Mississippi-Warrior Service, asking for joint rail-water routes and rates. The hearing on one of these complaints, Docket 18406, against the Beaumont, Sour Lake & Western, a subsidiary of the Missouri Pacific, et al., was completed on the same day. This complaint alleges that the failure and refusal of the defendants to participate with the complainant in a joint rate over routes from Gulf Hill, Tex., via Baton Rouge, La., and Cairo, Ill., to East St. Louis for the movement of sulphur in carloads is unreasonable and in violation of Section 1 of the Interstate Commerce Act, and asks the commission to prescribe reasonable joint through rates with a reasonable division thereof. The hearing on Docket 19017 against the Chicago Great Western, et al., alleges that it is necessary and desirable in the public interest that joint through routes through reasonable joint, barge and rail rates together with reasonable divisions thereof be established via Dubuque, Iowa, over the line of the complainant and the lines of the defendants between the Twin Cities and all points on the lines of the defendants in the states of Illinois, Indiana, Missouri and Iowa, and that the refusal of the defendants to join with the complainant in the establishment of such joint through routes and joint through rates is unjust and unreasonable and in violation of Section 1 of the Act. The hearing on this complaint was started on January 20 and continued until January 22.

Ask for a Through Rate of 30 Cents

In presenting the first case for the Inland Waterways Corporation, Theodore Brent, traffic manager, asked that the commission establish a through rate of 30 cents from Gulf Hill, Texas, via Baton Rouge, and that the carriers receive for their haul west of Baton Rouge a rate which would produce the same revenue per ton-mile as did the rate of 32½ cents all-rail. He stated that the establishment of a 32½-cent through rate from Gulf Hill to East St. Louis, which was slightly less than the applicable rate via Baton Rouge and the barge line, had the effect of fixing a blanket rate for a distance of 607 miles.

C. H. Guion, general freight agent of the Gulf Coast Lines, testified that the basis of divisions as suggested

(that is, that the rail line from Gulf Hill to Baton Rouge accept, as its proportion of the reduced through rates, an amount to be arrived at by multiplying the Gulf Hill-Baton Rouge mileage by the ton-mile earnings resulting from the current rate and mileage from Gulf Hill to St. Louis via the Atchison, Topeka & Santa Fe to Kansas City) is entirely unreasonable in that (a) the rate of 32½ cents is a depressed rate made to meet water competition and the route observed is one necessary to meet carrier competition; (b) the formula is not applicable in that it contemplates the use of a ton-mile yield for a greatly extended distance, on a shorter haul and is in direct contravention of the principles usually observed as proper. The distance from Gulf Hill to Baton Rouge is 373 miles and from Gulf Hill to St. Louis via the Sante Fe and Kansas City is 1,206 miles, or 322 per cent of the shorter haul, while the higher rate on the longer haul is only 216 per cent of the lower rate for the shorter haul. The basis referred to would make a rate of 9.5 cents per 100 lb., or \$2.12 per gross ton and, allowing the barge line the balance, would give the barge line \$4.60 per gross ton or \$1.60 per gross ton in excess of its local rate.

Testimony presented in support of Docket 19017 advocated a reduction in rail rates from Dubuque to Minneapolis and St. Paul which would be equal to the difference in the rail and water rates from that point north and desired the Chicago, Burlington & Quincy, the Illinois Central, the Chicago Great Western and the Chicago, Milwaukee & St. Paul to interchange freight with the barge line at Dubuque to and from points in the four states. It was indicated that without the rail-water rates asked for, the upper Mississippi service would be useless.

Revenue Would Not Pay for Service

The testimony of the carriers showed that the proposed rates would be too low for the service involved in that they would not yield the rail lines sufficient revenue to pay for the service. The lower barge rates would divert the traffic from the carriers and the latter would not be able to recoup. This would diminish the carriers' earnings and be detrimental to their interests, as at present none of the roads is earning a fair return on its investment. The proposed division of rates also would reduce the carriers' earnings. A study made by the Chicago Great Western during a three-months' period showed that for the carload and less-than-carload traffic handled this company received \$48,084, while under the interchange asked for it would be only \$19,527 or \$28,557 less than it had been earning. For a year this would approximate \$100,000.

Importance of Adequate Tonnage

Carrier representatives also testified that the present general level of rates would be amply high if the nine roads involved between Chicago and the Twin Cities could secure adequate tonnage. If the carriers are deprived of tonnage the added revenue necessary to counteract the loss in earnings must be secured from another source. Traffic moving under class rates for which the carriers have applied to the commission for adjustment is not earning a fair return, consequently the traffic in agricultural products would have to compensate for the loss of revenue.

The South Dakota Railroad Commission intervened in the case on the grounds that the proposed rates would discriminate against South Dakota interests. The effect would be to give jobbers in the plaintiff's territory an advantage in rates to the Twin Cities.

Wood Preservers Urge Greater Use of Treated Timber

Report economies obtained with ties and advocate preservation of car lumber



SERVICE records of treated cross ties presented at the twenty-third annual meeting of the American Wood Preservers' Association which was held at the Hermitage hotel, Nashville, Tenn., on January 25, 26 and 27, offered further evidence of the economies which the railways are enjoying as a consequence of the extensive use of treated woods. Of a less encouraging aspect was the progress report of the Committee on the Treatment of Car Lumber which shows that little advance has been made in this field during the past year although a number of roads were reported as making tests which promise economies which will insure a greater interest in this special field of timber preservation.

One of the striking conclusions to be reached from a study of the reports and papers presented at this meeting is the marked contrast between the prevailing tendencies in American and European practices in timber preservation. Recent developments in the United States and Canada have been confined primarily to improvements in the technique of utilizing creosote; zinc chloride and their admixture with petroleum oils, while development in Europe tends toward extensive service tests with toxic salts used but little in America. It is true that reports presented at this convention point definitely to the efforts being made to determine the availability of toxic materials other than those now commonly used, but the discussions showed clearly that the results of such investigations are not forthcoming for some time.

The facts concerning European practice in timber preservation were brought out in a paper by George M. Hunt of the United States Forest Products Laboratory, Madison, Wis. Mr. Hunt's paper and a report on the treatment of car lumber, are abstracted in the following pages, while other features of the program are reviewed more briefly.

The total registration was about 300. The meeting was called to order by President C. F. Ford, supervisor of ties and timber, Chicago, Rock Island & Pacific.

On Wednesday morning W. H. Courtenay, chief engineer, Louisville & Nashville, addressed the conven-

tion on the results secured from treated timber on that road after more than a half century's experience. He described the unusually long life secured from timber treated in 1875 in bridges between Mobile and New Orleans, and told of many of these piles being withdrawn and used elsewhere when one of these bridges was abandoned two years ago, as they were still sound. He deplored the fact that we are not getting as good results from timber now used. He reported that creosote will not arrest attacks of marine borers and described other methods of protection against this damage used on his road.

At the annual election held during the last session of the meeting the following officers were chosen to direct the affairs of the association for the coming year: President, O. C. Steinmayer, superintendent timber preservation, Canada Creosoting Company, Montreal, Que.; first vice-president, H. R. Condon, forester, Pennsylvania System, Philadelphia, Pa.; second vice-president, H. E. Horrocks, manager, Pacific Creosoting Company, Seattle, Wash.; secretary-treasurer, (re-elected) E. J. Stocking, Chicago; members executive committee: C. C. Cook, maintenance engineer, Baltimore & Ohio, Baltimore, Md.; William Steen, manager, Long-Bell Lumber Company, Shreveport, La.

Discuss Technical Problems

In compliance with the policy of the association to maintain a close contact with the United States Forest Products Laboratory at Madison, Wis., for the purpose of insuring that the industry may avail itself of the benefits of the technical studies being made in the science of timber preservation, the program included three papers by members of the Forest Products staff on various technical phases of the treatment of timber. E. Bateman, chemist in forest products, presented a review of the causes of the eventual decay of treated timber, or more specifically, the reasons for the evaporation or leaching out of the preservative in the wood. He also outlined the studies which are being made for the purpose of obtaining a solution of this problem. Mr. Bateman and R. Baechler, assistant chemist in forest products, also presented a joint paper on investigations of the availability of various toxics not now in common use, in which they reached the conclusion that most of these are not suitable for use but that sodium chromate and borax offer sufficient possibilities to warrant the making of track tests.

Tests for the purpose of determining the effects of temperature and pressure on the penetration and absorption of coal tar creosote into wood were reported in a paper by J. D. MacLean, engineer in forest products, the primary conclusion being that increasing the temperature not only increased the penetration but also made increases in pressure more effective.

The successive alternations of steaming and vacuum drawing are more effective than a continuous steaming

followed by a final vacuum is the conclusion of the Committee on Steam Treatment, based on studies made at the forest products laboratories of the United States and Canada. The tests also indicate that steam treatments are ineffectual in reducing the moisture content below 30 or 40 per cent.

While the Committee on Preservatives reported that investigations are in progress for the discovery or development of oils or other toxics which may be used as substitutes for those now in common use as preservatives, there was at this time no development along this line worthy of mention. The report of this committee was devoted to highly technical studies, primarily of creosote.

The Committee on Posts made a brief progress report and recommended a continuance of the assigned subjects in 1927.

Room for Improvement in Separating Ties

That there is room for improvement in plant practices with respect to the separation of cross ties into various sizes and groups required for treatment is apparent from the study made by the Committee on Material Handling. One cause ascribed for this condition is the failure of the railroad to conform to the standard specifications for cross ties, some railroads requiring no separation and others as many as 12 separations. In the opinion of the committee, ties should be separated as to sizes and groups before shipment to the plant and the inspection made at the point of loading so that they can be stacked properly as unloaded. The committee recommended further study of this problem and also a study and report on accidents at treating plants.

Three Committees Present Specifications

As in previous years, the presentation and discussion of specifications for various species of wood and of woods for various uses comprised a feature of the convention. Specifications were offered on the non-pressure treatment of poles, the treatment of fir lumber and the treatment of trunking and capping lumber. A specification for the treatment of fir lumber was presented in tentative form with the recommendation that the study of this specification be continued. In the presentation of the specification for the treatment of trunking and capping lumber, the committee called special attention to certain features of the specification designed to insure against injury to the insulation of wires by the creosote. For example, it provides that only distillate creosote shall be used, to the exclusion of solutions, blends or mixtures. The final vacuum must be followed with a steam bath to wash creosote from the surface of the wood.

The Committee on the Non-Pressure Treatment of Poles presented three specifications:

- (1) Preservative treatment of pole butts by non-pressure process, (Incised method).
- (2) Preservative treatment of pole butts by non-pressure process, (Non-incised method).
- (3) Short time immersion treatment.

The third type is admittedly a superficial form of treatment, but there is a substantial demand for it from users of small poles of the durable species who, either for financial reasons or because the lines to be built of such poles may be for more or less permanent use, are unable or unwilling to pay the price for a more effective treatment. The committee is satisfied that while the more thorough types of treatment produce the greater economy, this superficial type does afford a protection

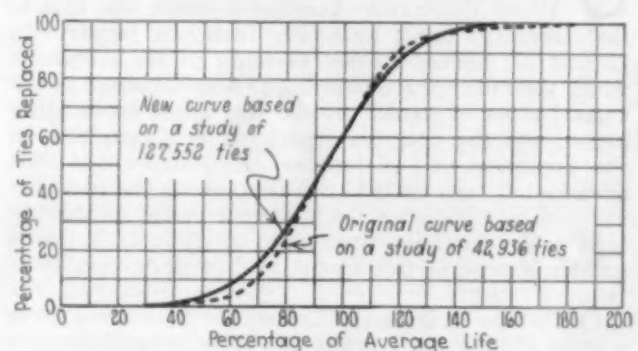
which is consistent with its cost and that inasmuch as a substantial demand for it does exist, it is proper that the association provide a guide in the way of a specification.

When Is Rot Not Rot?

Marked attention was given at the convention in 1925 to a paper by W. H. Long, forest pathologist of the Bureau of Plant Industry, United States Department of Agriculture, Albuquerque, N. M., with the title, "When is Rot Not Rot?," in which he made a plea for a more liberal attitude on the part of the purchasers of railroad cross ties produced in Arizona in the acceptance of ties containing heart rot. Dr. Long supported this decision by a report on tests which show that treatment in most cases sterilizes this Arizona timber in the tie to an extent which renders the fungus incapable of continuing the decay. At the present convention, Dr. Long presented a progress report supplementing the report of 1925, on the basis of which he concludes that "all species of conifers so far tested except yellow pine floaters and all types of heart rot are thoroughly sterilized by the usual treatment given at the Santa Fe treating plant at Albuquerque, N. M., and Somerville, Texas."

Tie Service Records

In addition to tabular reports of special test tracks on the Atchison, Topeka & Santa Fe, the Baltimore & Ohio and a number of other roads, the Committee on Tie



Comparison of the New and Old Curves for Average Life of Ties

Service Records presented the usual table of average tie renewals per mile of track on a number of railroads, the total this year being 26. The average renewals per mile of track in 1925 for the 26 railroads included in the summary, was 187 as compared with 268 in 1915. An appended column of five-year averages shows a gradual

Tabular Statement Taken From the Renewal Curve

Percentage renewed	Percentage of average life	Percentage renewed	Percentage of average life	Percentage renewed	Percentage of average life
1	39	36	85	71	107
2	45	37	86	72	107
3	49	38	87	73	108
4	53	39	87	74	109
5	55	40	88	75	109
6	57	41	88	76	110
7	59	42	89	77	111
8	61	43	90	78	112
9	63	44	91	79	113
10	64	45	91	80	113
11	65	46	92	81	114
12	66	47	92	82	115
13	68	48	93	83	116
14	69	49	93	84	117
15	70	50	94	85	118
16	71	51	94	86	119
17	72	52	95	87	120
18	73	53	96	88	121
19	74	54	96	89	123
20	74	55	97	90	124

Percentage renewed	Percentage of average life	Percentage renewed	Percentage of average life	Percentage renewed	Percentage of average life
21	75	56	97	91	125
22	76	57	98	92	126
23	77	58	99	93	128
24	77	59	99	94	130
25	78	60	100	95	132
26	79	61	101	96	135
27	80	62	101	97	138
28	80	63	102	98	142
29	81	64	102	99	148
30	82	65	103	100	188
31	82	66	103		
32	83	67	104		
33	83	68	105		
34	84	69	105		
35	85	70	106		

Estimate of average life should not be based on less than 20% renewals.

reduction from an average figure of 261 for the five years ending in 1915 to 194 for the five years ending in 1925.

Another feature of the report of this committee was the presentation of a new curve showing the relation of the percentage of ties replaced to the percentage of average life, to supersede the original curve presented by Mable Thorne at the convention in 1918. The original curve was based on records of the life of 42,936 ties, whereas the revised curve is based on the records of 127,552 ties. A chart showing the relation between the original and revised curves and a tabular equivalent of the revised curve, are presented herewith.

Progress in the Treatment of Car Lumber

The field of treated car lumber was so thoroughly covered by the report made at the last convention that the committee assigned to this subject deemed it unnecessary to go into these details again. Queries addressed to the majority of the railroads and private car lines of the country showed that the great majority of the railroads have not yet investigated this subject, and no railroads in addition to those quoted in the 1925 report have used treated lumber in car construction or repairs. The following statements abstracted from the committee's report indicate the progress made during the year and supplement the report made last year:

The Atchison, Topeka & Santa Fe is continuing the program outlined in last year's report. All reports received on treated lumber in cars have been favorable, indicating the excellent condition of the roofs on stock cars, flooring and stringers in flat and gondola cars, decking and dump doors in drop bottom stock cars, etc.

The Baltimore & Ohio has been using the brush treatment on car sills for some years, using principally straight creosote oil, and in many cases a preparation of carbolineum.

The Boston & Maine has made an investigation of the use of treated lumber for cars but has not come to any decision on the question.

The Canadian Pacific does not use treated lumber in car building or car repairing, but has, so far, depended upon the painting of joints and surfaces. It has investigated the matter at different times and on account of the great many angles to be considered besides the actual use of the treated lumber, such as handling, location of drying plants, etc., is waiting further developments before going into the matter.

The Central Railroad of New Jersey has reported the use of treated lumber to some extent for car sills and flooring in gondola cars but has not come to any definite decision.

The Chicago, Burlington & Quincy uses the creosote pressure treatment on sills, framing and flooring of stock cars.

The Chicago, Milwaukee & St. Paul has applied treated lumber to about 100 stock cars. The process employed was the full-cell method. As yet sufficient time has not elapsed to obtain experience on which to base any opinion. On new equipment, it was found that the cost of treating the floor and the bottom side slats for stock cars would be between \$25 and \$30 per car, an expenditure which is deemed not warranted.

The Chicago, Rock Island & Pacific has made some investigations but no definite steps have been taken as yet regarding the use of treated lumber in its car equipment.

The Chicago & North Western applied creosoted decking to 500

stock cars built in 1925, using the hot bath method reported by last year's committee.

The Great Northern was reported last year as having built 500 36-ft. all-wood stock cars with creosoted sills, posts, braces, decking and roofing. This road has just completed 250 steel underframe cars in which the posts, end sills, side sills, roofing decking, joists, and braces were given a 6-lb. treatment with straight creosote.

The Lehigh Valley has decided to use treated lumber for side sills of box cars, side and end sills of milk cars, and center, side and end sills of refrigerator cars, when the cars receive a general overhauling or rebuilding.

The New York, New Haven & Hartford uses freight car lumber brush-treated with a high grade of creosote oil at locations where experience has shown decay is prevalent, i.e., mortises and tenons, posts and braces, post and brace shoes and sills, upper side of flat and coal car sills, portions beneath posts and brace pockets, ends of flooring, etc.

The Pacific Fruit Express has not made an investigation nor reached any conclusion relative to the use of treated car lumber during the past year, but has applied Lucas car cement by brushing to a limited number of sub-sills and lower floor stringers. It was stated that the material has no objectionable odor when dry but has not been in service a sufficient length of time to determine the results of such treatment.

The Reading has done very little treating of wood for car repairs.

The American Refrigerator Transit Company has not developed anything in particular in wood preservation, but has had the subject under consideration for some time and feels that it is one of great importance.

The Merchants Despatch Transportation Company has applied creosote only to the sills of refrigerator cars. Experience has shown that if creosote is used in any other part of the car its odor is manifest.

The Union Refrigerator Transit Company has been using only such varnishes, paints and waterproofing compounds as have been tested in use for some time, so as to avoid the danger of objectionable odors in cars.

Few railroads are equipped to use the pressure process to advantage in the treatment of lumber for repair and rebuilding purposes. That being the case, the use of the pressure process at present for repair work is greatly handicapped. The next best proposition would be the proper use of the brush treatment, which should greatly prolong the life of the lumber as compared with untreated material, since rot usually develops at the points of contact. This is especially true of box car side sills at their points of contact with the car siding. It is the thought of the committee that a standard method of preparation and application would be a step in the right direction.

Wood Preservation and Utilization in Europe.

By Geo. M. Hunt,

In Charge of Wood Preservation, U. S. Forest Products Laboratory, Madison, Wis.

In general, European ways of handling and using wood are not our ways, because differences between economic conditions there and here require differences in wood utilizing practices. Most of the countries visited do not produce enough wood for themselves and must import it. It is therefore not a material that may be thoughtlessly wasted. Similarly, although creosote is a surplus product in Europe, it is generally used more sparingly than in the United States, where most of it must be imported and its cost is higher. On the other hand, Europeans are quite often as wasteful of labor as we are of materials. In each case it is the cheaper commodity which is wasted, but in the final analysis both practices are inefficient.

Preservatives Used

Coal tar creosote is looked upon everywhere as the most effective preservative. Other preservatives are used oftentimes because of cost considerations or special re-

quirements not met by creosote, but not because they are considered more effective in preventing decay. Under normal conditions a surplus of creosote is produced in England, Belgium and Germany, a large part of which is shipped to the United States since we produce only about one-third of our needs. There is no assurance of a permanent surplus, however, because no one can foresee the developments of the next few years in the coal distilling industry. Even now there are occurring occasional shortages of creosote which compel temporary substitution.

Zinc chloride is not extensively used in Europe as a wood preservative, although it is still used to a slight extent in England.

Zinc chloride-oil mixtures are used by the Italian government railways in a process similar to the Rütgers or Card process.

Mercuric chloride (corrosive sublimate) is the standard preservative used for the treatment of poles by the Kyan or soaking process. The customary solution strength is about two-thirds of one per cent. One German plant uses mercuric chloride in a pressure cylinder of the usual type. To avoid corrosion, the tram cars are made of wood and the inside of the cylinder is painted with a protective coating.

Copper sulphate has been used for many years as a pole preservative by the Boucherie (end-pressure) process.

Wolman salts are used quite extensively in Germany for mine timber treatment, and with good success. Triolith, the chief Wolman salt, consisting of sodium fluoride, dinitrophenol, and a bichromate, has also been used occasionally in the treatment of poles and railway ties. In 1915 and 1916 a total of about one million pine ties treated with an absorption of 1/7 to 1/6 of a pound of Triolith per cubic foot were installed by the German government railways because there was a shortage of creosote. The results thus far have been good. There seems no present likelihood, however, of Triolith displacing creosote in Germany for the treatment of poles and ties, although its extensive emergency and experimental use is affording excellent opportunities to judge its effectiveness in these forms of timber.

Basilit is quite similar in composition to the Wolman salt Triolith. It is finding some use in Germany in the treatment of poles and ties.

Metal Ties

None of the railway men to whom I talked were enthusiastic about steel ties. Some did not appear willing to discuss the relative technical merits of steel and wood for the purpose, while others frankly expressed their preference for wood on the grounds that the track and fastenings are more easily maintained in good condition on wood ties, and that rolling stock suffers less wear and tear than on steel. Switzerland appears to be going back to wood. Track maintenance expenses in Germany were said to be 50 per cent higher on steel ties than on wood. Broken stone ballast is required for metal ties. Gravel or other ballast will not do. Many designs of metal ties have been tried out, but none have proved entirely satisfactory. I gathered the impression that pressure of the steel industry for government railway business was perhaps the chief reason for the use of such a high percentage of metal ties. Steel ties at any rate can be used with reasonable success, and whether wood or metal is the better on technical grounds is not necessarily settled by the relative extent of their use in central Europe.

Service Records

In England the life of full-cell creosoted pine ties was variously estimated at 18 to 22 years in main line track, after which many are still good for further service in secondary tracks.

On the French state railway it is estimated that the life of creosoted beech and oak ties is from 20 to 30 years, averaging about 27 years.

In Germany the oldest Rueping treated pine ties have been in service 20 years and are said to be generally still in good condition. The official interviewed ventured the opinion that their average life might be as much as 35 years. Before the Rueping process was introduced, beech was commonly treated with about 17½ lb. of creosote per cubic foot by the full-cell process. Many of these ties have been in service since 1896 and 1897.

According to the government statistics of Denmark, the average annual renewals of ties on account of decay since 1910 have been about 3 per cent, and renewals for all causes about 4¼ per cent. This indicates a probable average life against decay of 33 years; or, if all causes of tie renewal are taken into consideration, the average life is indicated at about 25 years.



Chicago Great Western Viaduct, Fort Dodge, Iowa

Wheeling & Lake Erie

*Merger rumors cause marked increase in price of stock—
Road's earnings show improvement*

THE stock exchange has continued during the past week its interest in shares of railroads with outstanding merger possibilities. The traders seem to be devoting themselves more particularly to those roads in connection with which there is special opportunity for rumors of what might take place. Thus, week before last interest was in Lehigh Valley and a rumored contest for control resulted in an increase in the price of the stock of 19 points in a single week and a high price for the issue before interest subsided of 125, which is a rather interesting price for a \$50 par value stock paying 7 per cent regular and 3 per cent extra dividends. This week the interest has been particularly in Wheeling &

Hudson and the projected New York, Pittsburgh & Chicago.

Control

While the interest in Wheeling & Lake Erie is at its height is as good a time as any to review briefly the operations of that property and to indicate why rumors of its contemplated inclusion in this or that contemplated new system recur from time to time. The road is said to be controlled by the Rockefeller interests through ownership of the \$11,882,600 7 per cent prior lien preferred stock. Dividends on this stock are cumulative from November 1, 1916, but none have ever been paid. There are also outstanding \$10,344,958 non-cumulative 6 per cent preferred stock and \$33,641,300 common. All three stocks have equal voting power but there is a provision that if the dividends on the prior lien stock should be in arrears for five consecutive years the holders of this stock will have the privilege of electing a majority of the directors. This would indicate that control of the property is not at present to be bought in the open market.

The Wheeling & Lake Erie was formerly a part of the Gould system and served as the connection between the Wabash and the Wabash Pittsburgh Terminal. It went into receivership when the ambitious Gould plans failed to sustain the cost of building into Pittsburgh and was re-organized effective as of January 1, 1927. The road has never developed any remarkable earning power nor has it succeeded in attracting any particular attention to any outstanding feature of operating ability. It has a problem with respect to valuation because the Interstate Commerce Commission gave it a tentative valuation of \$41,000,000 as of June 30, 1918, which with subsequent additions would have amounted to about \$50,000,000 at the end of 1925. The carrier, however, has a book value of about \$90,000,000 and its capitalization totals about the same amount. The road, however, is favored at least to a degree in that its proportion of stocks to bonds is unusually high.

The three classes of stock above mentioned total \$55,868,858. The funded debt at the end of 1925 totaled only \$34,204,300, of which \$15,000,000 was in long term bonds, \$15,044,300 in equipment trust certificates and \$4,160,000 in notes. Interest charges in 1925 totaled only \$1,316,275. This explains how it is that without outstanding earning power the road could have earned in 1925 after fixed charges and allowance for the dividends on the prior lien stock (which were not paid), the equivalent of \$23 a share on the 6 per cent non-cumulative preferred stock and \$5.45 a share on the common stock. It is estimated that the net income in 1926 will be found to



The Wheeling & Lake Erie

Lake Erie and Western Maryland. On Monday of the present week the sales of the common stock of the former company totaled 115,800 shares and the stock rose 7 points in one day. In the meantime, the price of Great Northern and Northern Pacific stocks, in spite of actual merger negotiations have remained practically unchanged.

Wheeling & Lake Erie common stock on Monday reached a new high price of 57 1/4. The highest price reached on this issue in 1926 was 32 and at one time it sold as low as 18. The rumors in the case of this stock have not been as clear as those in the case of the Lehigh Valley. However, it is alleged in some quarters that rival interests are buying Wheeling & Lake Erie, possibly L. F. Loree or maybe the Van Sweringens. One is reminded of Mr. Loree's previously rumored trunk line system made up of the Wabash, the Wheeling & Lake Erie, the Pittsburgh & West Virginia, the Delaware &

Table I—Wheeling & Lake Erie Operating Results, Selected Items, 1917 to 1926

Year	Mileage	Revenue ton miles	Revenue passenger miles	Rev. per ton mile, cents	Total operating revenues	Total operating expenses	Net operating revenues	Operating ratio	Net railway operating income	Net after charges
1917	512	1,514,181,000	38,220,000	0.623	\$11,028,904	\$7,378,213	\$3,650,692	66.90	.....	\$1,113,895
1918	512	1,510,350,000	21,693,000	0.793	13,592,172	11,290,779	2,301,393	83.07	.....	300,295
1919	512	1,186,471,000	23,894,000	0.900	12,600,840	10,925,716	1,675,124	86.71	.....	306,636
1920	512	1,522,922,000	31,025,000	1.017	17,952,257	16,125,999	1,826,258	89.83	.....	56,725
1921	512	1,045,778,000	29,489,000	1.217	14,291,993	11,767,002	3,024,991	79.55	\$1,755,356	670,129
1922	512	895,712,000	24,094,000	1.257	13,179,902	11,166,554	2,013,348	84.72	393,880	206,267
1923	512	1,551,357,000	23,904,000	1.094	19,213,669	14,753,220	4,460,448	76.79	2,709,241	1,746,603
1924	512	1,476,470,000	21,806,000	1.110	18,332,401	14,410,273	3,922,129	78.61	2,361,489	1,282,744
1925	512	1,646,332,000	17,475,000	1.127	20,395,619	14,400,990	5,994,629	70.61	4,364,972	3,286,279
1926	11 mos. ....	.....	.....	.....	19,483,526	13,743,662	5,739,864	70.5	4,218,003	.....

have totaled about \$24 on the preferred stock. The arrears on the prior lien stock now total \$70 a share or \$8,525,000.

Mileage

The road operates 512 miles of railroad. Its lines extend from Toledo across Ohio to the Ohio river at Steubenville, Ohio, and Wheeling, W. Va. There is another important line from Cleveland which runs via Canton, branches at that point, one part connecting with the Toledo-Ohio river line at Brewster and the other at Sherrodsville. An important branch gives the road an outlet on Lake Erie at Huron and it is at this point that the road dumps its lake coal tonnage and receives ore which gives it a profitable back haul to the steel plants on the Ohio river or in the neighborhood of Canton. There are various less important branches, including one to Zanesville, built, it is understood, in connection with an effort to extend the original line south to the Ohio river.

From a merger standpoint interest in the Wheeling & Lake Erie comes from the fact that it connects with the Pittsburgh & West Virginia at Pittsburgh Junction, Ohio, and with the latter offers a line from Toledo or Cleveland to the Pittsburgh district. As a through line this route has its limitations, the principal one being

Ohio and Pittsburgh district, the so-called No. 6 district, the Massillon district and the Coshocton district. Of these, of course, the No. 8 field is much the more important. The coal from it moves to the several industrial centers served by the road. A large tonnage is taken by other railroads for railroad fuel and a very large tonnage is shipped via lake boats from Huron. In view of the fact that the coal tonnage of 1925 compared rather favorably with that of various preceding years it would appear that the Wheeling & Lake Erie was not as adversely affected by the Jacksonville wage agreement and the competition which it favored on the part of the non-union fields south of the Ohio was not as great as might be expected.

Another important item of the road's traffic is iron ore which in 1925 constituted 12 per cent of the road's total tonnage. This ore comes to the railroad at Huron and moves as a back haul in the cars which bring the coal to that point. As would be expected from a railroad serving such a highly developed and industrial area, a large proportion of its traffic is manufactured products which in 1925 totaled 39½ per cent of the road's total tonnage. The item of bar and sheet iron, structural iron and iron pipe ranked second to coal in the road's commodity classification. Another important item is pig iron and about 10 per cent of the road's tonnage is included under the head of other manufactures and miscellaneous.

A statistical record of the road's increase in traffic in recent years is given in the second column of Table I. The fact that in 1925 and in 1926 it handled a larger traffic than ever before, combined with the growing proportion of the higher grades of freight no doubt explains the interesting increase in the road's net income in 1925 and in 1926 shown in the other columns of the same table. It will be noted, for instance, that the net income after interest and other charges in 1925 was not far from being twice that of 1923 and was 2½ times that of 1924, or that the net railway operating income of 1925 was 60 per cent larger than in 1923 and 85 per cent larger than in 1924. This increase has been carried in 1926 as is indicated by the fact that the net railway operating income for the first 11 months of 1926 totaled \$4,218,003 as compared with \$4,068,692 in the same part of 1925 which was an increase of 3.5 per cent. The question is as to whether the Wheeling & Lake Erie is reporting as good net income as might be expected because of the road's location and its natural advantages.

Operating Statistics

The information to be gained from the road's operating statistics is not impressive. In Table II there is a comparison of the latest figures for 1926—those for the first 10 months—with similar figures for the first 10 months of 1920, this six-year span being taken to secure a picture of the long time trend. It will be noted that the 1926 net ton-miles were 12 per cent greater than those of 1920 but that to handle this increased traffic there were increases of 13.4 per cent in the freight train miles, of 15.1 per cent in the freight locomotive miles and 23.6 in the freight car miles. Although on the other hand there was an increase of only 2.7 per cent in the freight train hours and of only 2.68 per cent in the tons of coal consumed by freight locomotives. In this six-year period the road has not increased its average train loading because in the first 10 months of 1926 the net tons per train were 1,045, whereas in the first 10 months of 1920 they were 1,058 which indicates a decrease of 1.2 per cent.

This failure of the train loading to increase may, however, be due to the increased proportion of the higher

Table II—Comparison of Selected Freight Operating Statistics

	10 Months		Per cent of change	
	1926	1920	Inc.	Dec.
Mileage operated.....	512	512	...	...
Gross ton-miles (thousands).....	2,629,545	2,194,054	19.8	...
Net ton-miles (thousands).....	1,487,775	1,328,658	12.0	...
Freight train-miles (thousands).....	1,424	1,255	13.4	...
Freight locomotive-miles (thousands).....	1,506	1,297	15.1	...
Freight car-miles (thousands).....	53,082	42,967	23.6	...
Freight train-hours.....	181,824	176,935	2.7	...
Tons of coal consumed by freight locos.....	233,012	218,261	6.8	...
Car-miles per day.....	18.2	12.1	50.4	...
Net tons per loaded car.....	40.4	42.9	...	5.8
Per cent loaded to total car-miles.....	69.4	72.1	...	2.7
Net ton-miles per car day.....	499	374	33.4	...
Freight cars per train.....	38.3	35.2	8.8	...
Gross tons per train.....	1,846	1,748	5.5	...
Net tons per train.....	1,045	1,058	...	1.2
Train speed, miles per train-hour.....	7.8	7.1	4.6	...
Gross ton-miles per train-hour.....	14,462	12,400	16.6	...
Net ton-miles per train-hour.....	8,183	7,509	3.8	...
Lb. coal per 1,000 gross ton-miles.....	158	...	...	...
Loco-miles per loco-day.....	52.1	45.1	15.5	...
Per cent freight locos unserviceable.....	16.1	27.7	...	11.6
Per cent freight cars unserviceable.....	4.5	11.3	...	6.8

the lack of connections through Pittsburgh to the east. However, it is agreed that in stronger hands the Wheeling & Lake Erie might be made a useful acquisition by some system desiring the connection which it offers and it has been remarked particularly that Mr. Loree could use it to advantage should he ever desire to proceed further with his supposedly contemplated trunk line system.

Traffic

Formerly about 45 per cent of the Wheeling & Lake Erie's traffic was bituminous coal. More recently it has built up a more diversified traffic in other commodities. As a result, in 1925 the coal traffic, while about on a par with that of various previous years, was only 35 per cent of the total revenue tons which as well as the revenue ton-miles were the largest in the company's history. The 1926 revenue ton figures are not yet available but it appears in the record that the net ton-miles, including both revenue and non-revenue freight, for the first ten months of the year exceeded the net ton-miles of 1925 by about 4 per cent.

The coal traffic that the Wheeling & Lake Erie handles is secured in four coal fields, namely the No. 8 Eastern

grades of freight. That this is the case does not seem so apparent when it is realized that this road is conducting its freight business with an average train speed or miles per train hour of only 7.8, one of the lowest figures reported for any railroad in the United States. It compared with 7.1 in 1920 and was an increase of 4.6 per cent but it will be readily realized that most roads have had in this period a far greater betterment of their train speed than this. The explanation of the low figure of miles per train hour may be due to the lack of signals, because it seems to be generally admitted that automatic signals serve to improve speed of operation to about as great an extent as any other single factor. Speaking in similar vein the increase in gross ton-miles per train hour of 16.6 per cent or that of 3.8 per cent in net ton-miles per train-hour seems to be out of line with the improvement that other roads would have succeeded in making with an increase of 12 per cent in their traffic.

To complete the statistical record, it should be remarked that in the first 11 months of 1926 the Wheeling & Lake Erie had an operating ratio of 70.5 per cent, which was about the same as that in the full year of 1925. Its ratio of transportation expenses to total operating revenues in the first 11 months of 1926 was 28.6, which is good and in fact considerably better than the operating statistics would seem to have made possible.

Conclusion

It appears from the record insofar as here presented that the Wheeling & Lake Erie is a somewhat mediocre property in a highly competitive territory and that it has benefited greatly from the increase in traffic which this territory has originated in the past few years. At the same time, it also appears that the road's greatest value seems to lie in its possibilities from the standpoint of consolidations, primarily for the fact that it offers a possible route between the great terminal center of Toledo and other points on Lake Erie and the Ohio river and in connection with the Pittsburgh & West Virginia, a route to Pittsburgh that would be more desirable could a system that acquired it be assured of some means of effecting a connection through Pittsburgh to the Atlantic seaboard. There does not appear in the record any evidence that would seem to justify the great interest in the stock of the company. One must conclude accordingly that the rise in the price of the stock is due primarily to the effect that rumors regarding contemplated mergers frequently have in the stock market.

Railroads Officers and Scrap Buyers Meet

AN important step in the direction of establishing national standards under which railroad scrap will be sold was made last week in Chicago when members of the committee on scrap of Division VI—Purchases and Stores—of the American Railway Association met with representatives of the National Association of Purchasing Agents and with dealers in scrap. It is understood that the railroad representatives have agreed to recommend the elimination of 16 classifications of scrap and that they are likely to secure a change in specifications covering the dismantling of cars that will increase the returns from this scrap from \$500,000 to \$1,000,000 per year.

The Chicago meeting had a dual purpose from the standpoint of the railroads, the first being to take the concluding steps in preparing a report to be presented to the annual convention of railway purchasing and

stores officers which meets in May, and the second being to co-operate in establishing national standards governing the disposition of iron and steel scrap. The movement toward standardizing scrap was launched by the United States Department of Commerce and culminated in the adoption of a standard classification of scrap by a national conference at the United States Bureau of Standards on January 12, 1925, where representatives of all classes of dealers in scrap were present, but the railroads, having adopted a standard classification of their own some years previous, have not participated in this undertaking. Proponents of the national standards have indicated their pleasure over the co-operative spirit displayed at last week's meeting by the railroads, and the railroad representatives express confidence in succeeding in having certain important changes made in existing standards.

Among the more important developments of the joint meeting was the action taken with reference to steel car body sheets, which constitute a large proportion of the scrap produced by railways. Under the national classification, this material is included under No. 2 heavy melting steel and must be cut into 12 in. by 15 in. sizes. The railroad representatives succeeded in getting buyers to agree to recommend a revision of this classification that will increase the required size to 15 in. by 30 in., and while failing in their efforts to have this material included in the No. 1 heavy melting class rather than the No. 2 heavy melting class, feel confident of their ultimate success in securing this revision on the ground that any deficiency in the thickness of plates from steel cars which fall below the minimum of $\frac{3}{4}$ in. in thickness is compensated for by the presence of material which is heavier and chemically better than much of the material usually falling in the No. 1 class. If the railroads are successful in accomplishing this change in the standards, the scrap returns to railroads will be increased from \$500,000 to \$1,000,000 a year by reason of the increased price obtainable for the higher class.

Among the proposals which the railway representatives are reported to have favored in harmony with the simplification movement are as follows:

To consolidate under heavy melting steel, steel arch bars and transoms, present A. R. A. Class 2; No. 1 cast steel, present A. R. A. Class 21; tools and tool steel, A. R. A. Class 25; and limed iron and steel, present A. R. A. Class 29.

It was also recommended to consolidate all angle and splice bars now under the three classifications, present A. R. A. Class 7, 8 and 9; to put uncut brake beams, present A. R. A. Class 12, built up bolsters, A. R. A. Class 13, No. 2 cast steel, A. R. A. Class 22, cast steel trucks and body bolsters, A. R. A. Class 23, No. 2 heavy melting steel, A. R. A. Class 32, and structural iron, A. R. A. Class 39, 40 and 41 into an uncut classification. It was also agreed to consolidate No. 1 and No. 2 spring steel, A. R. A. Class 44 and 45; to consolidate all turnings, borings and drillings now under A. R. A. Class 20, 50, 52 and 53; and to include coupler yokes in with iron arch bars and transoms. It was also decided that No. 1 steel rail, A. R. A. Class 35, be sold with a guarantee for adaptability for re-rolling. In almost all cases, the above decisions were made after discussions of prices disclosed that differentials were not sufficient to justify separation of these materials in sorting.

Further developments of the meeting from which the railroads profited include the decisions that steel axles, $5\frac{3}{4}$ in. in diameter and over are to be sold under a separate classification and that flues of certain sizes demanding special prices are also to be sold separately.

Among those attending the meetings were: G. W.

Lieber, superintendent reclamation, M. K. T.; C. N. Lammers, chief material inspector, C. & E. I., C. B. Tobey, general storekeeper, L. V.; A. L. Prentice, superintendent scrap and reclamation, N. Y. C.; J. C. Kirk, assistant general storekeeper, C. R. I. & P.; L. V. Guild, purchasing agent, O. S. L., T. S. Edgell, division storekeeper, M. & O.; J. C. Bon, superintendent reclamation, Wabash; R. D. Crawford, general storekeeper, M. P.; J. L. Ortner, supervisor scrap, Erie; J. J. Jordan, storekeeper, D. L. & W.; A. J. Copeland, purchasing agent, Industrial Works; B. C. Sawyer, purchasing agent, Bethlehem Fabricating Company; H. C. Wickline, purchasing agent, Union Steel Castings Company; G. C. McClure, purchasing agent, National Association of Sheet and Tin Plate Manufacturers; R. Forester, secretary, National Association of Purchasing Agents; A. R. Curtis, purchasing agent, National Enameling and Stamping Company; T. G. Elliott, purchasing agent, Babcock and Wilcox Company; H. R. Colwell, Metals Utilization Bureau, United States Department of Commerce; Frank Parker, general manager, Briggs and Turivas; Arthur Price, president, Price Iron and Steel Company; and D. R. Cohen, representing the Iron and Steel Scrap Association of Chicago.

Says Canadian Freight Rates Are Too Low

ANALYSES of the financial position of the Canadian Pacific, which, in his opinion, renders it necessary that any equalization of rates "must be scaled upward," were presented to the Dominion Railway Commission this week by E. E. Lloyd, assistant comptroller of the company. Under examination by E. P. Flintoft, C. P. R. counsel, Mr. Lloyd expressed the view that, as the result of efficient and economical administration and financing Canadian shippers were enjoying the advantages of freight rates lower than any comparable service in other countries. He said that the results from 1921 to 1925 had been obtained during a period when the volume of traffic was for the most part, above the average, but that with the inevitable lean year the company's financial position, under existing freight rates and labor and material costs, would unquestionably be greatly impaired.

The examination of Mr. Lloyd opened with the presentation of an exhibit showing the net operating results of the Canadian Pacific for each year from 1911 to 1925, inclusive. During the first five years in this period there was an average net surplus after fixed charges and dividends of \$10,035,000. In the next five-year period this surplus sank to \$7,636,000; and in the last period of five years it had fallen to \$1,377,000. The second five-year period included in the survey was a period of increasing freight rates, but these had not been sufficient to overcome rising costs, with the result that the surplus had been cut as indicated. The last five years was, in turn, a period of rate reductions. The last increase was that made on September 13, 1920, when eastern rates were raised 40 per cent and western rates 35 per cent. The reductions made in the last five years were summarized by Mr. Lloyd as follows:

Jan. 1, 1921...40 per cent reduced to 35 per cent in Eastern Canada.
35 per cent reduced to 30 per cent in Western Canada.
Dec. 1, 1921...35 per cent reduced to 25 per cent in Eastern Canada.
30 per cent reduced to 20 per cent in Western Canada.
July 6, 1922...Crow's Nest Pass rates on grain and grain products in Western Canada became effective, decrease approximately 30 per cent.
Aug. 1, 1922...Basic commodities reduced.
25 per cent to 17½ per cent in Eastern Canada.
20 per cent to 12½ per cent in Western Canada.

Aug. 1, 1922...Grain and grain products to Vancouver for export reduced 20 per cent.
Aug. 1, 1922...Mountain scale from 30 per cent above Prairie scale to 15 per cent above Prairie scale.
Oct. 22, 1923...Export grain rate of Vancouver reduced 10 per cent.
Sept. 15, 1925...Export grain rate to Vancouver reduced approximately 5 per cent.

*Percentages refer to 1920 rate increase.

and several other voluntary reductions such as the live stock rates, August 15, 1921.

Dealing with the rate earned by the Canadian Pacific on its property investment, Mr. Lloyd stated that from 1911 to 1915 it was 5.414 per cent; from 1916 to 1920, 4.810 per cent; and from 1921 to 1925, 4.022 per cent. He called attention to the rate of 5.75 per cent fixed as fair for American railways by the Interstate Commerce Commission, and pointed out that on the average between 1921 and 1925, when average net earnings of \$37,072,000 per year were obtained, or 4.022 per cent, these earnings fell \$15,931,000 per year short of the rate fixed for American railways. Putting the matter another way, he said that recent earnings produced a fair rate upon an investment of only \$644,745,000 out of an actual average investment for the period of \$921,814,000, leaving an investment of \$277,068,000 upon which no return whatever was earned. He also illustrated the matter in another way by stating that the existing earnings provided a fair return on the investment for only 255 days of each year, with the result that there were no earnings to pay interest for the remaining 110 days of the year.

He quoted a finding of the railway board in the western rates case that 2 per cent was reasonable surplus to which railways were entitled over and above fixed charges and dividends. On this basis, the surplus for the five years from 1921 to 1925 should have been \$18,436,000 per annum, instead of which it was \$1,377,000. He added that as the 2 per cent rate had been based on a 4 per cent money market and money was now approximately 5 per cent, the proper surplus under the decision of the board should have been \$23,045,000 during the last five years.

Mr. Lloyd presented to the board exhibits to show the increases in operating expenses during recent years. From 1915 to 1925, he stated, wage rates showed increases ranging from 42 per cent to 190 per cent. In 1920 the average increase was 95 per cent. Since that date there have been some decreases ranging from 7 to 21 per cent and averaging 10 per cent. As examples of the increase in the cost of materials, he quoted lumber with an increase of 80 per cent, iron and steel bars 42 per cent, steel plates 136 per cent, rails 78 per cent, track bolts 30 per cent, track spikes 60 per cent, etc. In contrast to these figures he put on record the average revenue per ton per mile. In 1915 the average revenue per ton on the Canadian Pacific was 0.773 cents. It reached its peak in 1921 at 1.196 cents, and in 1925 it was 0.970 cents. During the same period on the Class I railroads in the United States it was 0.772 cents in 1915; 1.275 cents in 1921 and 1.098 cents in 1925. This, he claimed, bore out the statement that freight rates enjoyed by the Canadian people are lower than those in the United States.

The witness then went on to testify that the low rate earned upon the investment in the railway during the last eight years was not due to any falling off in operating efficiency, and he presented half a dozen comparisons to support his statement. The average freight car load for the year 1925, he said for example, was 26.65 tons as compared with the average 24.62 tons for the period from 1915 to 1917, an increase of 2.01 tons per car. Again the average freight train load increased in the same period from 553.42 to 599.84, an increase of 46.42 tons; while the average number of equivalent gross tons

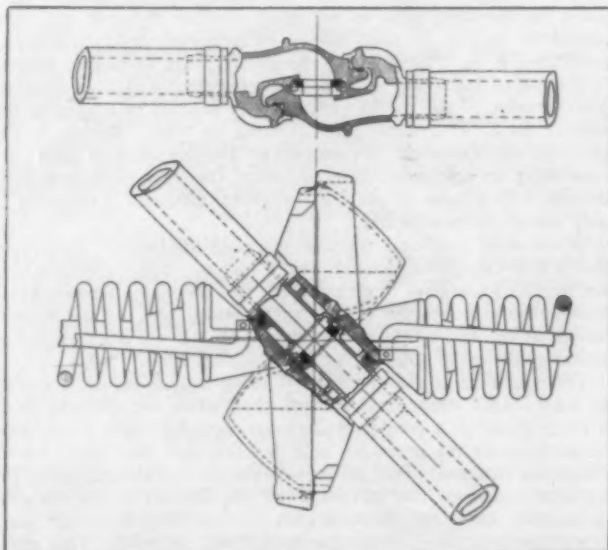
hailed per locomotive mile rose from 1,239 to 1,365, an increase of 126.

Analyzing the relation between operating expenses and taxes on one hand and gross earnings on the other, Mr. Lloyd stated that a comparison between 1925 and 1911 showed that the volume of traffic had increased 52 per cent and gross earnings 83 per cent, whereas operating expenses and taxes had increased 117 per cent, resulting in an increase of only 17 per cent in net earnings to take care of the increases in the fixed charges and dividends of 49 per cent and property investment of 60 per cent. In this connection he gave figures to show that in 1911 the property investment in the Canadian Pacific was \$585,874,000, while in 1925 it was \$939,849,000.

Recent Changes in American Hose Connector

DURING the past ten years the Consolidated Connector Corporation, 118 Noble Court, Cleveland, Ohio, has built several different designs of automatic hose connectors, the last design of which was described on page 375 in the February 11, 1922, issue of the *Railway Age*. The company has worked out a design which it terms as its standard connector which is said to function under every track and climatic condition and on any class of equipment.

The most important change has been made in the air



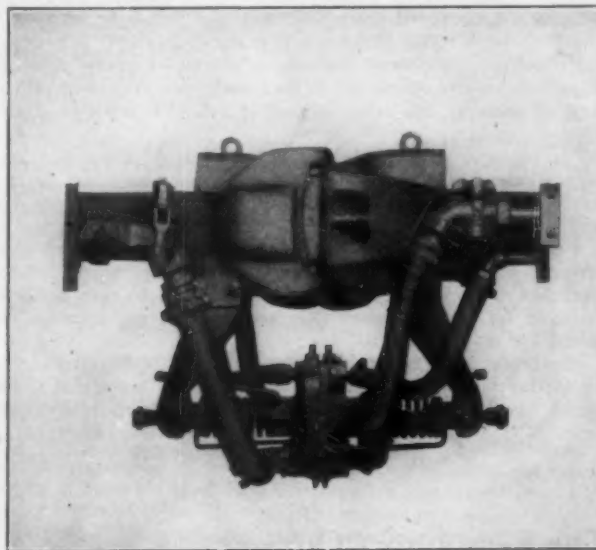
The Connector Head Is Designed So That There Are no Angles or Bends in the Air Passage Between the Cars

brake port. By redesigning the connector head, this port has been located at an angle of 45 deg. to the meeting face. The head has also been designed so that there is no chaffing action on the gaskets in coupling the two connections. As may be seen from the accompanying drawing, all curves and right angle bends incident to the present hose coupling, have been eliminated. A straight flow of air between the two cars reduces the frictional resistance of the air passing through the brake pipe when applying and releasing the brakes.

All unions and pipe fittings used to attach the hose to the connector have been eliminated as the nipple is now clamped to the hose in the same manner as in the present

hand hose coupling. The nipple enters an opening in the head and is retained in position by a small pin that can be removed by hand in case of changing a hose or removing gaskets while the cars are coupled.

In order to avoid using the high spring pressure necessary to hold the pressure of the air brake, air signal, and steam lines in the passenger car type connector, a simple and effective lock has been designed. It consists of a barrel which is attached to the connector head, a plunger and a bar leading back to the spring seat of the con-



American Passenger Car Type Connector Coupled

connector, with a slot and cam arrangement so that when the connector is coupled, the head moves back, sliding the lock back on the cam and causing the plunger to drop down through the face of each connector. There being a lock on each connector, on each side of the steam port, a $\frac{3}{8}$ -in. pin extends into an opening in the mating connector, making a positive lock on each side of the port. In uncoupling, just before the connectors start to separate, the lock is automatically unlocked, allowing the connectors to come apart freely. The spring pressure is the same on both the freight and passenger type connectors.



An Electrically-Operated Swing Span on the London & North Eastern

Communications and Books

Depreciation and Lessening of Value

WASHINGTON, D. C.

TO THE EDITOR:

In your editorial of January 8 you have made a very clear distinction between "depreciation" and the "lessening of value." The illustration "The distinction is made clearer if it is realized that the depreciation reserve should in effect be regarded much as a fire insurance fund, the one to be drawn upon in case of retirement of property, the other in case of a fire" is a very apt and terse statement.

The analogy, however, breaks down when we remember that we pay currently in cash for the fire insurance protection and are careful to pay the cash only to responsible concerns who will reimburse in case of loss; while, on the other hand, the carriers as a whole could not for a number of years have made such cash payment into a reserve as contemplated in the commission's depreciation order for the very simple reason that no cash has been available for such payment after setting aside net earnings required for a "fair return."

The depreciation order is now a fact which calls attention to the further distressing fact that there is no guarantee that in the future when it becomes operative there will be any cash to set aside.

JNO. R. LEIGHTY,

Special Engineer, Southern Railway.

The Reason for "Our Fanciful Railway Maps"

BUFFALO, N. Y.

TO THE EDITOR:

The usual practical acumen seems momentarily to have forsaken the editor of the *Railway Age* while commenting on "Our Fanciful Railway Maps" (January 15, page 224) as criticized by H. L. Mencken, editor of the *American Mercury*. The diagrammatic treatment of railway lines or systems is not resorted to, as a rule, with any intention of deceiving the public, but rather to simplify their maps so as to be intelligible to that vast section of the people to whom strictly geographical maps would mean little or nothing, being too complicated. The passenger is interested most of all in the line upon which he happens to be traveling, and if the map shows him approximately where he is, he is quite well satisfied though the real location of the place may be a little farther north or south, east or west. If junction points, railroad crossings, river crossings, etc., are correct with reference to the points along the line, the passenger is well informed and requires nothing more, except mileage which the timetables themselves give him.

It often occurs that a small railway requires a map which will in the first place show at least most of its stations, and yet within given dimensions show its through connections to important distant points like New York or Chicago. On a true scale its own line might become almost nothing, so that the only possible way to meet both these ends in such a map is to resort to distortion of geography, and, while retaining a reasonable length for the subject railway, it may nevertheless show the through traffic lines with their junction points correct to serve as a guide for a shipper or a passenger who may have to originate his route on the line issuing the map but be obliged to continue it via connecting lines.

Even great railway systems like the Pennsylvania or New York Central find it advantageous to enlarge the vast territory which they themselves serve with their main lines and numerous branches, while their western connections may as well be somewhat condensed owing to the smaller amount of detail to be shown in them.

It is not at all likely that the railroad companies will depart from their present policy in publishing maps, because the system in use is the result of many years of experience and has been found to be the most satisfactory in general; the principal excep-

tion being the annual report-maps which are usually drawn true to scale.

The production of satisfactory distorted maps has occasioned the most highly specialized profession in connection with railroad work. Men who can produce such maps are very rare for it requires a more thorough knowledge of true geography than to make geographically true maps, and a wider, vaster knowledge of railroads than almost any other calling. To be really good, such men must devote their lives to just this work, and, to begin with, they must be temperamentally suited to it. The railway companies know this only too well, for they know few concerns can give them really satisfactory maps.

The map is one of the greatest helps to either ticket or freight agent, and often provides him a means of showing the passenger or shipper what would otherwise be very difficult to explain, and this notwithstanding the fact that the map used is seldom geographically true.

ROBERT C. BRELLE,

Map Department, J. W. Clement Company, Matthews-Northrup Works.

Merchandising Local Passenger Transportation

YOUNGSTOWN, Ohio.

TO THE EDITOR:

While riding in a gas-electric car on one of our eastern railroads the question came to my mind whether the unit had been placed in service to save money or whether the railroad had purchased it in order to give the public more attractive service to the end of attracting more business for that particular division. The exterior of the car in question was finished in a sombre red enamel finish with some gold lettering as trim. Owing to the inherent characteristic of enamel to become darker with age regardless of efforts to keep it clean, the car itself looked as though it had been in service for years, although it actually is only about six months old.

While with the local traction company the writer discovered that a first-class enamel finish would lose its attractiveness within six months regardless of cleaning efforts, whereas a lacquer finish looked the same at the end of three years' time as the enamel looked at the end of the first month. This is not a guess, but is actual experience, obtained in Youngstown, Ohio.

This leads up to the question of using lighter colors, for trim at least. Our experience showed that when we changed from a dark green to a combined dark green and French ivory combination, using the green for side paneling only and ivory for all above the belt rail, it not only made the cars more attractive, but actually increased the patronage of the line on which the cars were run. Later the platform ends were finished in solid French ivory for everything from the buffers to the roof. This made them stand out like a sore thumb, but it certainly caused much favorable comment on the part of passengers and prospective passengers. Some of these cars have been in service over three years, operating in a very dirty district, as far as railway equipment goes, and it is impossible for the average man to tell the difference between them and cars just out of the paint shop.

The purpose of this letter is not to advocate the use of lacquer finish, but to show that cars can be made attractive and kept that way for long periods of time with a minimum of expense.

So much for the exterior. Another fact noted in the gas-electric cars is the use of seats which are far from comfortable. The railway car seat has not changed much in the last 20 years, with perhaps the addition of a little more upholstery to the seat cushions or backs, and even the most optimistic railroad officer will admit that coach seats are generally far from being as comfortable as the average seat used in the de-luxe motor bus of today.

Again I quote traction experience. One company discovered that by taking the ordinary coach type seat and redesigning it

so that the seat back was tilted back at a greater angle, and the front of the seat cushion raised to correspond with the angle of the back, a big difference was effected in the comfort of the seat itself, making it like an automobile seat in comfort and desirability. Needless to say, this improvement did not drive away business from the interurbans. Another company has gone so far as to replace the coach type seat with twin bucket type seats on all of its through cars at a cost of over \$5,000 per car, but has found that it paid in increased patronage. The bucket type seats in question have individual spring cushions and are preferable to the Pullman swivel chairs.

The business of merchandising passenger transportation on steam roads is just in its infancy and the improvement in passenger cars will certainly bring the road with the best cars the biggest share of passenger business.

G. A. DOERIGHT, JR.

Books and Articles of Special Interest to Railroaders

(Compiled by Elisabeth Cullen, Reference Librarian,
Bureau of Railway Economics, Washington, D. C.)

Books and Pamphlets

Concentration of Control an Inherent Result of the Congressional Policy of Railroad Unification as Expressed in Transportation Act, 1920, by W. A. Colston and J. H. Agate. A brief with exhibits that is an unusual contribution to the literature on railroad consolidation. 100 p. 10 exhibits. Privately printed.

Imperial Conference 1926. Summary of Proceedings. The subjects of the recent Imperial Conference included "Imperial communication other than air," "Pacific cable," and "Imperial air communications." Cmd. 2768. 61 p. Pub. by H. M. Stationery Office, London, Eng. 1 shilling.

Les Locomotives Articulées, by Lionel Wiener. History of the design, adaptation, and improvement of articulated locomotives or transportation problems in various parts of the world. Profusely illustrated. 327 p. Pub. by Imprimerie F. Van Buggenhoudt, Brussels, Belgium. 35 Belgian francs.

The Safety-Appliance Laws, compiled by the Interstate Commerce Commission. Comprises texts of the safety-appliance laws, the Ash-Pan law, Orders of the Commission fixing U. S. safety-appliance standards, and plates illustrating the U. S. safety-appliance standards. 75 p. and 18 folding plates. Pub. by Govt. Print. Off., Washington, D. C. 50 cents.

What Price Progress? by Hugh Farrell. Presents the marked changes in various industries caused by commercial utilization of results of discoveries in research laboratories in a thoroughly readable way, showing, among other things, how these changes have affected, or are liable to affect, investors and others who have a "stake in industry." 323 p. Pub. by G. P. Putnam's Sons, New York City. \$2.50.

Periodical Articles

Caravan Transport Across Mongolia, by V. P. Copping. Costs, routes (1800 miles or so), commodities carried from the end of the railroad, time, special risks. Illustration, and map showing relation of the caravan routes to the railroads. *Commerce Reports*, Jan., 1927, p. 78-79.

An Industrial Divorce—the Separation of Corporation Management from Ownership. A Reply to Professor Ripley, by Maurice Hely Hutchinson. A consideration of Prof. Ripley's suggestions, and an evaluation of the results of his articles. *Century Magazine*, February 1927, p. 385-491.

Is There But One Kind of Value? Valuation of Public Utilities. Summaries of recent court and other expressions on what is a value and why. *Harvard Business Review*, Jan. 1927, p. 236-244.

Requirements for Statisticians and Their Training: I. Statistical Teaching in American Colleges and Universities, by James W. Glover. *II. Standards and Requirements in Statistics*, by Donald R. Belcher. *III. Content and Purpose of Training in Elementary and Advanced Statistics*, by Willford I. King. *IV. Mathematical Background for the Study of Statistics*, by H. L. Rientz and A. R. Crathorne. *V. Statistics in Insurance Service*, by Edwin W. Kopf. *Journal of the American Statistical Association*, December 1926, p. 419-446.

Looking Backward

Fifty Years Ago

During 1876, 328 passengers were killed in a total of 982 accidents. The same accidents resulted in the injury of 1,097 passengers.—*Railroad Gazette*, January 26, 1877.

The Marietta & North Georgia has asked the Georgia Legislature for a grant of \$5,000 per mile to buy iron for the road, a large part of which is graded. The road is to run from Marietta, Ga., northeast to Murphy, N. C., about 95 miles.—*Railroad Gazette*, January 26, 1877.

The question of the economy of building cars of iron is being studied by car builders, and some of them think favorably of discarding wood almost entirely. A platform car and a box car built by the National Tube Works, out of wrought-iron tubes and steel rods, have been running for eighteen months without requiring a dollar of repairs, the one carrying 15 tons of stone and the other about 20 tons of ice. First cost and difficulty of repairing in case of accident may act as serious drawbacks to this type of car.—*Railway Age*, February 1, 1877.

Twenty-Five Years Ago

The Interstate Commerce Commission in its fifteenth annual report recommends, as a means of abolishing the practice of rate cutting, the amendment of the act to regulate commerce "so as to open the books of the carriers to the inspection of the commission or its agents. Such publicity would be of the greatest service in exposing and punishing illegal practices of this kind, and it is difficult to see any good reason why this ought not to be permitted."—*Railroad Gazette*, January 31, 1902.

The methods, object and effect of the transactions involving the transfer of control of the Great Northern, the Northern Pacific and the Chicago, Burlington & Quincy properties and the organization of the Northern Securities Company were made the subject of a special investigation by the Interstate Commerce Commission in Chicago, on January 24 and 25. The entire commission was present with James J. Hill and E. H. Harriman as the principal witnesses to appear.—*Railroad Gazette*, January 31, 1902.

Work will begin this year on the tunnel which the Pennsylvania will build under the North and East rivers and Manhattan island, New York. The tunnel will be continuous from the Jersey meadows to a point on Long Island and the work is to be completed within four years at a cost which is expected to be \$40,000,000.—*Railway Age*, January 31, 1902.

Ten Years Ago

The Kansas City Southern has filed a protest with the Interstate Commerce Commission against the tentative valuation of the properties announced by the commission. The company's protest makes comparisons between findings of the commission and a report of the valuation department recently established by the railroad. The Public Utilities Commission of Kansas has also filed a protest against certain methods used in obtaining the valuation.—*Railway Age Gazette*, January 26, 1917.

Information furnished to the Interstate Commerce Commission by forty-six railroads, with approximately 65 per cent of the total mileage of the country, during the Louisville car shortage inquiry, shows that for the fiscal year ending June 30, 1916, the average car movement per day reached the high figure of 29.03 miles, as compared with 26.69 miles in 1913, the highest previous record. The average daily mileage per car in September, 1916, for these roads was 31.54 or 4.58 miles greater than the average for the same month in 1913.—*Railway Age Gazette*, January 26, 1917.

Odds and Ends of Railroading

The tendency recently has been to elect younger men as railroad presidents. Formerly, the average age of presidents was somewhat higher than it is now. But the youngest of all railroad presidents has just taken office. He is George M. Neville, age 21, who has just been elected president of the Meridian & Bigbee River, with headquarters at Meridian, Miss. Mr. Neville succeeds his father, S. A. Neville.

Twenty years ago railroads in the southwest expected their station agents to do double duty and not only take care of one but two and three stations. An agent in New Mexico in 1907 performed this daily task with the help of a horse. He met the train at H— and after it had departed he rode across the mountains to S— in order to be on hand when the train appeared at the second point. The trainmen had a habit of informing the passengers that twin agents were employed at the two stations. At one time when handling three stations, explains the former agent, it was necessary to get a little more speed out of the horse.

Forty-five years as a bridge foreman without losing a man is the proud record of Eugene Greenwald, 73, who is retiring from active service on the Chicago, Milwaukee & St. Paul. Greenwald has been in the bridge building department of the C. M. & St. P. since its organization in 1882 and worked on bridges on the Milwaukee road for five years before that, while in the employ of the Baltimore Bridge Co. He is not severing his railway connection entirely and will continue to act in an advisory capacity.

The comment on the red neckties worn by operating men in England, taken from the London Times and published in this column in the January 8, 1926, issue of the *Railway Age*, has led one of our readers to inquire as to what has become of the distinguishing marks of a railroad operating man in this country; namely, the black bow tie and gold watch chain heavy enough to be used, in a pinch, in case of a pulled out drawbar. In reply, it is observed that quite a number of operating men still favor the black bow tie. It is becoming to most men who wear it and besides it is a practical bit of adornment for the busy railroad man who must be dressed up for a job that is quite often a dirty one. A black bow tie helps to make a slightly soiled collar look glaringly white by contrast. Railroad men in this country have had little occasion to wear a red tie or carry a red bandana to stop a train in case of emergency. Our locomotive engineers have always been familiar with the stop signal given by hand. If it is desirable to have some distinguishing dress for the railroad man, why not revive the old custom of the black bow tie and if necessary, add the watch chain.

WE OUGHT TO CHARGE FOR THIS

The following letter was received recently by the Southern at Nashville from an enthusiastic inventor in Chicago. It has its pathetic as well as humorous angle: "I Would tipe this letter But. I Have Sent My Machine to the Shop to Have Repaired lifier. How Meny thousands of Dollars are you Paying out a year. on Account of Peoples Death. listen I Can Pervent you From Paying all of that out. I Have Seen A Automatic Sigener in My Sleep. And I Got up that Morning. At 2 O'Clock. And Maped it op On a Piece Of Paper. Now I Have Sevel Maped Out on a large Paper 2 yords long & 14 inches Wide. And it is the Best Sigener Ever Was Discovered. & if it is Built like my instructions tell you. you Will Never Again Have to Pay out Eny More Money for the Death of Peoples. Now you Write today For my large R.R. Automatic Sigener. With the instruction With it. that tells you How to Have it Built. it is an Automatic Sigener that Never Ben Discovered Before. I Will Save you. from Having to Pay for Eny More Deathers. Now Doant Pay a Penny. until you Write and Recieve this Big Rail

Road Sigener in your Office. And see what you are Buying. & See Does it Worth the Money. & if you think it Do. then you can send me, the money By Monthly Payments. this Map ony cost you Seventy Five thousand Dollars. & it is Worth Ninety Eight Hundreds thousand Dollers to you Every 2 Years."

BUT RULE 99 SAYS RAIL BENDER NEEDED IN REAR

"I note your comments as to the possibility of the passing of picturesque language in railroading," writes our old friend Anon. "No doubt you have heard of the investigation of a rear end collision. The head brakeman was asked what the crew was doing when the collision occurred. His reply was as follows:

The hoghead was down on the ground greasing the pig. The tallow pot was cracking diamonds; the con was up in the dog house flipping tissue; the hind shack was cooling a red hub; and I was up ahead bending the rails.

"It is easy to account for the rear end collision."

CHAIN LETTER MATHEMATICS

Railroad officers, like every one else, in the past few years have been pestered by chain letters purported to have been "started by an American officer" which "should go around the world three times." These letters are great wasters of time and money since, while many courageous souls file them promptly in the waste basket, there is a surprising number who say: "Of course, I don't think there is anything to it, but why take a chance?" One of our readers, a traffic manager, writes:

This is a fine thing for an army officer to threaten one who fails to perpetuate a fool movement. Evidently this chain letter is responsible for the World War and all its horrors.

A friend of mine got a similar letter, carried out the order, counted nine days and very nearly lost his life on the promised lucky day.

A woman wrote her nine letters and counted her nine days. When the promised good luck failed, she jumped off a roof in despair.

The list contains the names of many whom our government and other governments support, with the idea that they have, at least, ordinary intelligence. There are over 120 names and 120 series of these chain letters which would total the astonishing figure of 190,593,799,593,706,179,618,396,267,914,535,411,540,207,819,264,231,539,740,625,975,833,858,601,733,683,915,880,696,927,275,827,915,587,609,644,812,435,878,249. The postage at two cents a letter would exceed the gross wealth of the world estimating land values at New York prices. If permitted to continue to even a limited extent, every typist in the world for centuries to come will be busy on this particular chain letter.

A Minor Railway Accident

(From the
South African
Railways
Magazine)





NEWS of the WEEK

THE RAILWAY CLUB OF PITTSBURGH will hold its second annual dance and card party at the Fort Pitt Hotel, Pittsburgh, Pa., on the evening of February 22.

THE CLEVELAND RAILWAY CLUB will hold its next meeting on February 7, when there will be a discussion on the changes of the 1927 A. R. A. mechanical rules.

THE CAR FOREMEN'S ASSOCIATION of St. Louis will hold its next meeting on February 8, at the American Annex Hotel, when the entire evening will be devoted to discussions on changes in the A. R. A. Rules.

THE CANADIAN RAILWAY CLUB will hold its next meeting on February 8, at the Windsor Hotel, Montreal, when a paper will be read on "The Natural Resources of Canada," by C. T. Young, superintendent of development, the Canadian National.

THE NEW ENGLAND RAILROAD CLUB will hold its next meeting on February 8, at the Copley Plaza Hotel, Boston, when a paper will be read on "Feedwater Heaters on Locomotives" by V. L. Jones, assistant mechanical engineer, New York, New Haven & Hartford R. R.

THE ST. LOUIS-SAN FRANCISCO has obtained a temporary injunction in the federal court to restrain the citizens of Sapulpa, Okla., from hindering the removal of its terminal from Sapulpa to Tulsa. Notice of appeal has been filed and actual moving of the shops will await final decision though the division point was changed to Tulsa on January 23.

THE CHESAPEAKE & OHIO EMPLOYEES' CREDIT UNION has been organized by C. & O. men at Richmond, Va., with a view to stimulating thrift and providing for reasonable credits. The announcement says that loan sharks have long prospered on their business among these railroad men. The credit union is planned for the benefit of all employees of this road in the State of Virginia.

AT WHITE PLAINS, N. Y., on January 25, Justice Frank L. Young, in the Supreme Court, affirmed a decision against the Pennsylvania Railroad for damages, in

the sum of \$60,000, in favor of Mrs. Catherine L. O'Connor, whose husband was killed in a derailment near Camden, N. J., denying the motion of the defendant to set aside the verdict as excessive. Mrs. O'Connor has five children. She said that her husband, 42 years old, earned \$300 a month.

THE PULLMAN COMPANY'S safety motion picture, the "Blue Flag," was recently shown in the coach yards of 10 railroads in Chicago, to about 1,500 railway and Pullman employees. Baggage cars were used and the exhibition was given 19 times in five days. The yards in which the picture was shown include those of the Baltimore & Ohio, the Illinois Central, the Chicago & North Western, the Chicago & Alton, the Chicago, Burlington & Quincy, the Pennsylvania, the Atchison, Topeka & Santa Fe, the New York Central, the Chicago, Rock Island & Pacific and the Chicago & Western Indiana. The Pullman Company has three prints of this picture available for loaning purposes. The service is gratis and the company is desirous that all railroad employees have the opportunity of seeing the picture.

Standard Time Zones Changed

Previous orders issued by the Interstate Commerce Commission defining the limits of United States standard eastern and central time zones have been modified to include in the eastern zone Cincinnati and Middletown, Ohio, and portions of Ohio, Kentucky and West Virginia, the change to go into effect on Sunday, April 3.

Annotation of Interstate Commerce Law Proposed

A resolution was submitted in the Senate on January 24 by Senator Hawes of Missouri requesting the Interstate Commerce Commission to prepare a manuscript, to be printed as a Senate document, covering the text of the various acts administered by the commission and related provisions of law, annotated with digests, following each section, of all pertinent decisions of the courts, by the commission and by other administrative agencies, and with regula-

tions of the commission, together with an index; and to transmit such manuscript to the secretary of the Senate on or before October 1.

Panama Canal Traffic in 1926

Transits of commercial vessels through the Panama Canal in the year ending December 31, 1926, totaled 5,420, a new high record, the previous record being 5,230 for the year ending June 30, 1924.

Tolls collected in 1926 amounted to \$23,901,540. This is less than the \$24,290,963 collected in the fiscal year ending June 30, 1924, and is the second largest amount collected in a year.

From the opening of the Panama Canal on August 15, 1914, to the close of business on December 31, 1926, a total of 37,599 commercial vessels have passed through the Canal, paying \$154,064,037 in tolls.

The Firemen's Wage Case

A conference is being held in New York between members of the brotherhood of locomotive firemen and enginemen employed on eastern railroads and the carriers in effort to reach some agreement in the dispute between the two parties as to wages and rules. G. W. W. Hanger, formerly vice-chairman of the United States Railroad Labor Board, has been selected by the United States Board of Mediation as special mediator in this dispute. Firemen have requested wage increases amounting to between \$1.00 and \$2.75 a day, depending on the type of service and the size of locomotive. In addition to the wage demand they have asked for changes in the rule governing over-time, the placing of mechanical stokers, the time allowance for meals en route, and an allowance for meals and lodging when away from home.

Southeastern Wage Question Still Before Board of Mediation

The strike vote of the conductors and trainmen on the southeastern railroads, except the Southern, which has a separate

(Continued on page 392)

Freight Operating Statistics of Large Steam Roads—Selected Items for Nov., 1926,

Region, road and year	Average miles of road operated	Train-miles	Locomotive-miles		Car-miles		Ton-miles (thousands)		Average number of locomotives on line daily			
			Principal and helper	Light	Loaded (thousands)	Per cent loaded	Gross, Excluding locomotive and tender	Net, Revenue and non-revenue	Serv-ice-able	Un-serv-ice-able	Per cent un-serv-ice-able	Stored
New England Region:												
Boston & Albany.....1926	407	242,171	262,947	29,723	5,289	67.0	284,513	114,391	104	15	12.7	5
1925	404	238,824	265,069	34,862	5,108	69.1	257,093	96,776	111	21	15.6	24
Boston & Maine.....1926	2,140	500,941	589,402	53,238	13,602	68.2	727,600	299,689	293	70	19.3	45
1925	2,253	507,006	601,657	55,325	13,411	71.3	669,918	270,773	331	99	23.0	45
N. Y., New H. & Hartf.....1926	1,888	527,936	553,544	38,646	14,786	68.3	779,032	324,849	278	68	19.7	14
1925	1,892	494,772	512,809	36,673	14,145	69.7	714,084	289,474	295	49	14.3	31
Great Lakes Region:												
Delaware & Hudson.....1926	875	381,264	522,436	59,096	11,335	65.7	733,404	377,608	247	44	15.0	61
1925	875	290,187	400,037	52,293	8,188	68.6	478,642	230,731	260	37	12.4	127
Del., Lack. & Western...1926	999	593,592	688,187	81,423	19,242	69.7	1,097,503	496,477	282	53	15.9	13
1925	993	526,368	594,759	68,229	16,260	67.4	878,504	353,048	289	62	17.7	65
Erie (inc. Chic. & Erie)...1926	2,323	1,065,289	1,173,554	133,519	38,116	63.9	2,358,593	1,038,386	546	120	18.0	51
1925	2,325	977,696	1,070,280	116,624	34,809	62.2	2,079,927	839,229	610	87	12.5	167
Lehigh Valley .....1926	1,345	627,431	695,633	90,681	19,344	63.6	1,175,191	529,612	401	68	14.6	50
1925	1,345	558,173	610,254	91,675	17,424	65.2	998,316	428,456	411	94	18.6	104
Michigan Central .....1926	1,835	544,278	559,635	20,093	17,494	61.8	982,978	373,256	239	56	19.0	57
1925	1,826	547,759	561,338	17,853	18,156	64.9	977,529	366,953	293	45	13.4	100
New York Central.....1926	6,482	2,198,627	2,507,376	175,060	80,434	61.1	5,054,958	2,232,034	1,134	294	20.6	208
1925	6,478	2,302,226	2,605,573	176,387	81,084	60.3	5,084,137	2,190,943	1,128	348	23.6	130
New York, Chic. & St. L. 1926	1,665	674,822	680,081	6,988	20,399	66.4	1,119,876	444,252	230	56	19.7	38
1925	1,669	667,196	676,562	6,716	20,409	66.2	1,106,517	436,642	218	78	26.4	26
Pere Marquette .....1926	2,179	468,782	476,229	8,142	11,205	63.9	649,440	273,504	189	30	13.7	8
1925	2,198	449,854	459,272	6,690	11,335	64.3	645,035	288,135	186	27	12.5	8
Pitts. & Lake Erie.....1926	231	153,716	156,659	2,896	5,413	61.8	425,050	245,407	62	17	21.2	11
1925	231	130,220	132,766	1,012	4,400	62.1	335,204	190,159	71	12	14.8	26
Wabash .....1926	2,497	761,243	793,401	13,738	22,456	65.6	1,284,413	524,871	330	49	13.0	46
1925	2,497	760,549	792,292	13,479	22,860	69.6	1,256,680	533,825	321	58	15.3	44
Central Eastern Region:												
Baltimore & Ohio.....1926	5,197	3,198,139	2,570,734	204,754	62,685	59.9	4,326,213	2,102,935	1,034	199	16.1	11
1925	5,196	2,113,445	2,490,012	201,394	62,795	63.0	4,049,364	1,971,576	978	220	18.4	42
Central of New Jersey...1926	691	282,647	308,636	35,017	7,969	60.4	531,836	262,045	216	44	16.9	24
1925	691	251,262	278,814	38,169	6,347	62.7	391,646	184,842	235	37	13.6	55
Chicago & Eastern Ill...1926	945	295,689	296,332	4,401	7,807	60.3	506,503	239,039	124	40	24.6	32
1925	945	268,195	270,359	4,175	7,495	62.9	463,218	223,796	128	35	21.2	41
Clev., Cin., Chic. & St. L. 1926	2,574	787,109	821,771	24,459	23,974	59.6	1,622,582	772,132	343	85	19.8	30
1925	2,381	786,919	829,696	33,985	24,636	61.1	1,622,067	764,758	335	82	19.7	3
Elgin, Joliet & Eastern...1926	460	137,707	146,833	7,239	3,578	56.0	290,140	146,450	79	11	11.8	1
1925	460	125,922	132,951	6,542	3,705	64.1	279,774	147,689	67	17	20.5	1
Long Island .....1926	393	53,011	59,990	16,050	704	56.8	45,813	17,993	53	12	18.0	1
1925	393	46,048	50,528	12,511	574	56.9	37,232	14,392	43	6	12.9	1
Pennsylvania System....1926	10,882	5,264,141	5,783,198	460,561	148,375	62.3	10,209,798	4,931,847	2,870	450	13.6	194
1925	10,888	4,921,897	5,376,939	428,125	140,597	63.2	9,374,370	4,471,553	2,681	652	19.6	157
Reading .....1926	1,129	708,335	778,701	79,714	18,799	61.1	1,359,815	717,803	231	69	17.3	14
1925	1,132	641,961	706,786	72,799	17,031	60.4	1,190,208	601,200	379	87	18.7	117
Pocahontas Region:												
Chesapeake & Ohio.....1926	2,651	1,290,221	1,373,439	50,152	40,878	55.3	3,376,253	1,875,100	543	94	14.8	9
1925	2,639	1,242,547	1,317,123	39,513	38,645	55.5	3,122,953	1,680,405	488	98	16.7	1
Norfolk & Western.....1926	2,231	999,754	1,227,967	55,833	34,907	58.5	3,024,342	1,702,440	551	55	9.0	74
1925	2,231	922,874	1,133,672	41,495	30,544	58.7	2,547,480	1,380,765	579	55	8.7	110
Southern Region:												
Atlantic Coast Line.....1926	4,931	796,687	804,388	13,098	20,746	61.0	1,182,027	457,808	442	45	9.2	73
1925	4,900	872,808	890,969	15,475	21,326	58.9	1,224,005	452,010	391	54	12.1	12
Central of Georgia.....1926	1,905	322,320	325,190	6,083	7,706	69.4	431,471	194,399	155	17	10.1	6
1925	1,907	356,911	360,467	5,499	7,595	68.1	418,799	183,136	147	16	9.9	11
I. C. (inc. Y. & M. V.)...1926	6,555	2,036,316	2,049,706	48,406	54,219	61.4	3,568,085	1,563,399	762	105	12.2	7
1925	6,555	2,014,804	2,031,041	41,847	56,003	64.9	3,483,830	1,553,381	771	110	12.5	8
Louisville & Nashville...1926	5,021	1,799,124	1,844,438	57,219	33,208	58.3	2,482,386	1,199,140	602	117	16.2	9
1925	5,027	1,878,240	1,988,906	68,397	36,581	60.8	2,464,368	1,191,074	605	94	13.4	5
Seaboard Air Line.....1926	3,971	607,576	621,235	12,193	15,726	64.4	927,577	392,131	250	43	14.6	5
1925	3,767	573,356	585,252	10,048	14,353	65.4	794,687	316,124	230	35	13.2	1
Southern Railway System. 1926	8,050	2,121,904	2,160,016	40,609	51,520	63.6	2,983,451	1,234,467	1,086	170	13.5	40
1925	8,174	2,195,303	2,251,358	41,476	51,945	64.8	2,923,536	1,191,113	1,045	165	13.7	41
Northwestern Region:												
Chic. & North Western...1926	8,461	1,511,960	1,561,817	26,020	35,130	60.6	2,107,888	825,560	749	160	17.6	110
1925	8,469	1,531,138	1,587,552	26,520	36,403	61.6	2,171,017	845,947	736	200	21.4	85
Chic., Milw. & St. P....1926	11,184	1,680,805	1,781,556	102,519	47,505	63.8	2,793,657	1,204,352	828	174	17.4	123
1925	11,201	1,639,243	1,762,337	92,868	47,676	65.4	2,756,998	1,209,767	897	202	18.4	94
Chic., St. P., Minn. & Om. 1926	1,724	329,294	355,156	16,276	6,380	63.1	363,950	147,316	156	31	16.6	2
1925	1,819	326,360	349,221	13,929	6,418	65.3	357,115	146,255	170	39	18.9	2
Great Northern .....1926	8,166	1,000,479	1,036,119	58,010	34,068	66.8	2,038,747	920,345	587	118	16.7	77
1925	8,224	970,504	1,006,802	53,075	33,125	68.6	1,941,651	927,118	620	123	16.5	81
M., St. P. & S. Ste. M...1926	4,372	545,872	560,459	3,968	13,336	69.3	730,335	313,853	300	26	8.0	17
1925	4,372	594,867	611,453	6,356	14,667	71.0	768,815	358,226	301	41	11.9	14
Northern Pacific .....1926	6,510	839,197	886,653	50,895	26,811	69.5	1,483,616	654,494	506	129	20.3	66
1925	6,511	834,237	885,758	55,866	29,469	68.6	1,689,975	755,150	536	129	19.4	57
Oreg.-Wash. R. R. & Nav. 1926	2,161	203,428	215,850	19,058	5,893	69						

Compared with Nov., 1925, for Roads with Annual Operating Revenues above \$25,000,000

Region, road and year	Average number of freight cars on line daily			Per cent un-serv-ice-able	Gross ton-miles per train-hour, ex-cluding locomotive and tender	Gross tons per train, ex-cluding locomotive and tender	Net tons per train	Net tons per loaded car	Net ton-miles per car-day	Car miles per car-day	Net ton-miles per mile of road per day	Pounds of coal per 1,000 gross ton-miles including locomotive and tender	Locomotive miles per loco-motive day	
	Home	Foreign	Total											
New England Region:														
Boston & Albany.....	1926	1,956	5,630	7,586	2.9	15,104	1,175	472	21.6	503	34.7	9,370	182	81.8
	1925	2,021	6,380	8,401	2.6	14,076	1,076	405	18.9	384	29.3	7,982	199	75.9
Boston & Maine.....	1926	11,127	18,069	29,196	6.4	14,865	1,452	598	22.0	342	22.7	4,668	138	59.0
	1925	11,643	16,515	28,158	9.2	14,401	1,321	534	20.2	320	22.2	4,007	148	51.0
N. Y., New H. & Hartf.....	1926	16,108	25,637	41,745	16.0	17,066	1,476	615	22.0	259	17.3	5,735	130	57.0
	1925	17,761	24,274	42,035	15.7	15,581	1,443	585	20.5	230	16.1	5,100	141	53.2
Great Lakes Region:														
Delaware & Hudson.....	1926	7,546	7,903	15,449	4.5	22,557	1,924	990	33.3	815	37.2	14,382	136	66.6
	1925	12,182	6,144	18,326	4.3	20,645	1,649	795	28.2	420	21.7	8,788	177	50.8
Del., Lack. & Western.....	1926	13,994	12,522	26,516	4.0	21,886	1,849	836	25.8	624	34.7	16,561	150	76.5
	1925	14,103	10,058	24,161	3.5	20,814	1,659	671	21.7	487	33.3	11,857	151	63.1
Erie (inc. Chic. & Erie).....	1926	31,184	25,198	56,382	6.9	25,426	2,214	975	27.2	614	35.2	14,901	136	65.4
	1925	31,944	23,131	55,075	6.5	24,032	2,127	858	24.1	508	33.8	12,030	135	56.8
Lehigh Valley.....	1926	20,104	13,490	33,594	7.1	24,243	1,873	844	27.4	526	30.2	13,121	159	55.9
	1925	19,391	11,308	30,699	7.3	24,897	1,789	768	24.6	465	29.0	10,615	152	46.4
Michigan Central.....	1926	14,399	18,000	32,399	4.1	24,898	1,806	686	21.3	384	29.1	6,781	125	65.5
	1925	13,313	20,172	33,485	4.6	24,710	1,785	670	20.2	365	27.9	6,699	125	57.2
New York Central.....	1926	55,369	79,458	134,827	3.4	26,361	2,299	1,015	27.7	552	32.6	11,478	123	62.6
	1925	54,740	79,649	134,389	4.0	25,071	2,208	952	27.0	543	33.3	11,274	129	62.9
New York, Chic. & St. L.....	1926	9,739	12,299	22,038	6.0	21,858	1,660	658	21.8	672	46.5	8,894	124	79.9
	1925	9,294	12,008	21,302	5.0	21,610	1,658	654	21.4	683	48.3	8,722	127	76.8
Pere Marquette.....	1926	8,580	11,244	19,824	3.6	15,773	1,385	583	24.4	460	29.5	4,184	126	73.8
	1925	7,397	13,203	20,600	3.6	15,601	1,434	641	25.4	466	28.3	4,369	126	73.1
Pitts. & Lake Erie.....	1926	7,553	11,512	19,065	4.0	28,248	2,755	1,596	45.3	429	15.3	35,342	117	68.2
	1925	10,159	9,046	19,205	7.2	25,963	2,574	1,460	43.2	330	12.3	27,385	81	53.7
Wabash.....	1926	13,032	14,472	27,504	2.6	23,497	1,687	689	23.4	636	41.9	7,007	143	70.9
	1925	11,938	14,074	26,012	2.4	23,183	1,652	702	23.4	684	42.1	7,126	142	70.9
Central Eastern Region:														
Baltimore & Ohio.....	1926	61,511	45,294	106,805	3.7	18,718	1,968	937	33.5	656	32.6	13,487	174	75.0
	1925	61,907	49,698	111,605	7.2	18,830	1,916	933	31.4	589	29.8	12,648	177	74.9
Central of New Jersey.....	1926	14,073	14,226	28,299	4.2	17,184	1,882	927	32.9	309	15.5	12,643	171	44.2
	1925	15,008	12,668	27,676	2.9	14,086	1,559	736	29.1	223	12.2	8,918	191	38.8
Chicago & Eastern Ill.....	1926	11,658	5,084	16,742	26.6	22,196	1,713	808	30.6	476	25.8	8,431	150	61.2
	1925	11,862	5,223	17,085	21.2	22,263	1,727	834	29.9	437	23.2	7,638	150	54.4
Clev., Cin., Chic. & St. L.....	1926	13,507	22,372	35,879	5.1	25,000	2,061	981	32.2	717	37.4	10,841	132	65.9
	1925	11,911	23,054	34,965	4.4	23,525	2,061	972	31.0	729	38.4	10,709	134	69.1
Elgin, Joliet & Eastern.....	1926	9,302	7,156	16,458	4.4	13,492	1,107	1,064	40.9	297	1.8	10,615	153	57.1
	1925	9,064	7,833	16,897	6.4	15,303	2,222	1,173	39.9	291	11.4	10,707	145	55.4
Long Island.....	1926	1,651	7,752	9,403	0.8	4,551	864	339	25.6	64	4.4	1,525	360	39.2
	1925	1,858	6,283	8,141	1.0	4,607	809	313	25.1	59	4.1	1,220	282	42.3
Pennsylvania System.....	1926	192,481	106,552	299,033	6.4	19,549	1,939	937	33.2	550	26.6	15,107	143	62.7
	1925	195,358	100,104	295,462	9.9	19,631	1,905	909	31.8	504	25.1	13,690	140	58.1
Reading.....	1926	18,370	21,826	40,196	3.1	19,846	1,920	1,013	37.8	595	25.8	21,191	160	71.6
	1925	17,427	19,096	36,523	2.9	20,998	1,832	937	35.3	549	25.7	17,708	153	55.7
Pocahontas Region:														
Chesapeake & Ohio.....	1926	28,506	13,397	41,903	2.9	26,974	2,617	1,422	44.9	1,460	58.8	23,076	106	74.4
	1925	26,118	15,349	41,467	2.8	24,304	2,514	1,353	43.5	1,350	55.9	21,228	115	77.2
Norfolk & Western.....	1926	31,194	12,824	44,018	1.5	35,993	3,025	1,703	48.8	1,289	45.2	25,432	144	70.7
	1925	26,698	11,529	38,227	1.7	33,988	2,760	1,496	45.2	1,204	45.3	20,627	153	61.7
Southern Region:														
Atlantic Coast Line.....	1926	20,981	14,264	35,245	3.4	17,646	1,484	575	22.1	433	32.2	3,095	122	56.0
	1925	20,786	25,201	45,987	3.1	14,554	1,402	518	21.2	328	26.3	3,075	137	67.9
Central of Georgia.....	1926	4,331	6,430	10,761	5.4	18,157	1,339	603	25.2	602	34.4	3,402	155	64.2
	1925	3,893	8,459	12,352	4.3	15,257	1,173	513	24.1	494	30.1	3,201	155	74.8
I. C. (inc. Y. & M. V.).....	1926	37,259	30,972	68,231	3.2	21,729	1,751	768	28.8	764	43.1	7,950	143	80.7
	1925	37,813	30,401	68,214	3.3	21,338	1,729	771	27.7	759	42.2	7,999	141	78.4
Louisville & Nashville.....	1926	38,882	18,851	57,733	12.4	15,946	1,380	667	34.1	692	34.9	7,960	170	90.0
	1925	37,919	24,785	62,704	11.5	14,382	1,312	634	32.6	633	32.0	7,898	172	98.2
Seaboard Air Line.....	1926	13,379	11,597	24,976	4.1	17,240	1,527	645	24.9	523	32.6	3,291	140	72.2
	1925	11,272	15,387	26,659	1.6	14,683	1,386	551	22.0	395	27.4	2,798	155	75.0
Southern Railway System.....	1926	51,732	32,988	84,720	5.3	17,766	1,406	582	24.0	486	31.9	5,112	163	58.4
	1925	50,802	41,004	91,806	4.5	16,061	1,332	543	22.9	452	29.1	4,857	169	63.2
Northwestern Region:														
Chic. & North Western.....	1926	46,740	22,654	69,394	6.1	17,484	1,394	546	23.5	347	24.3	3,252	147	57.9
	1925	46,092	30,590	76,682	8.9	17,723	1,418	552	23.2	367	25.6	3,333	145	57.5
Chic., Milw. & St. P.....	1926	51,575	28,217	79,792	5.2	19,944	1,662	717	25.4	503	31.1	3,589	151	62.7
	1925	54,437	27,704	82,141	5.2	20,340	1,682	738	25.4	491	29.6	3,600	150	56.2
Chic., St. P., Minn. & Om.....	1926	3,160	9,260	12,420	12.3	13,859	1,105	447	23.1	395	27.1	2,849	150	66.3
	1925	2,855	8,917	11,772	10.2	13,640	1,094	448	22.8	414	27.8	2,680	157	57.9
Great Northern.....	1926	41,440	16,764	58,204	4.5	23,428	2,038	920	27.0	527	29.2	3,757	138	51.7
	1925	44,708	15,452	60,160	6.1	22,704	2,001	955	28.0	514	26.7	3,758	140	47.6
M., St. P. & S. Ste. M.....	1926	19,354	5,817	25,171	3.6	15,257	1,288	575	23.5	416	25.5	2,393	125	57.7
	1925	18,838	7,726	26,564	4.2	15,624	1,292	602	24.4	450	25.9	2,731	120	60.4
Northern Pacific.....	1926	33,888	10,052	43,940	6.1	22,118	1,768	780	24.4	497	29.3	3,351	149	49.2
	1925	32,989	11,360	44,349	6.1	22,250	1,809	808	25.6	568	32.3	3,866	149	52.3
Oreg.-Wash. R. R. & Nav.....	1926	7,622	4,380	12,002	3.5	20,654	1,705	764	26.4	432	23.5	2,398	183	48.7
	1925	6,576	4,196	10,772	3.6	18,899	1,638	732	25.5	464	26.0	2,289	192	49.8
Central Western Region:														
Atch., Top. & S. Fe (incl. P. & S. F.).....	1926	48,636	25,123	73,759	4.8	24,805	1,857	693	22.7	641	45.6	4,600	126	80.5
	1925	4												

News of the Week

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agreement with the brotherhoods, was returnable on January 20, but no announcement of the results was made by the brotherhoods. Instead conferences were resumed with the United States Board of Mediation by a small number of representatives of the two brotherhoods and of the conference committee representing the southeastern lines. Conferences with the board which were in progress before the first of the year were interrupted, although not officially terminated, at the time the brotherhoods announced their intention of taking a strike vote to reinforce their original demands for an increase of about 19 per cent in wages, after the railways had declined their proposal to apply the award of the board of arbitration in the eastern case.

Retaining Valves Need Attention

Information recently received by the Committee on Brakes and Brake Equipment of the American Railway Association, Mechanical Division, indicates that retaining valves are not given proper consideration when cars are being painted and Circular D. V. 500 has been issued on this subject. Instances are reported, wherein, due to carelessness in painting, the ports in the retaining valves are blocked with paint, particularly the small vent port in the retaining valve cap or body, causing improper operation of the retaining valve and, in some cases, overheated and broken wheels. The committee believes that each railroad should call the attention of air brake repairmen and also those in charge of painting cars to this practice, in order that inspection may be made following the painting of cars to determine that the exhaust and vent ports are not obstructed, or that suitable provisions are made to protect the retaining valves while cars are being painted.

Vocational Education on Electric Road

Over 100 employees of the Chicago, North Shore & Milwaukee are studying in universities and colleges of Illinois and Wisconsin and in vocational classes within the company as a result of the educational program started six years ago by the railroad. Arrangements whereby the North Shore Line assumes half of the tuition cost have been made with the University of Wisconsin, Northwestern University, Marquette University, Kent College of Law and Armour Institute. The educational work of the railroad began with the establishment of English and Americanization courses in 1921. At the present time Americanization work is confined to the individual, usually in aiding applicants for citizenship. The scope of activities has grown steadily from this original basis and the co-operative plan now makes it possible for employees to prepare for the future through actual university training. Company courses offered include public speaking, electricity, mechanical drawing, blue print reading, shop arithmetic, automotive engineering and air brake operation and theory.

Railroad Repair Shops

The Department of Commerce announces that, according to data collected at the biennial census of manufactures taken in 1926, the repair shops of steam and electric railroad companies reported work done during the year 1925 to the aggregate value of \$1,332,679,000, a decrease of 12.3 per cent as compared with \$1,520,093,000 for 1923, the last preceding census year. For steam railroad repair shops alone the total was \$1,248,867,000, a decrease of 12.9 per cent as compared with 1923, and for electric railroad repair shops it was \$83,812,000, a decrease of 3 per cent.

at Cuthbert. The flag for the best shop record went to the Cedartown shop. Several of these awards went for the second or third time to the same person. Mr. Jackson illustrated his talk on agriculture with a motion picture.

The slogan of the company for the ensuing year is the same as that for 1926, "Say It With Service." Mr. McCartney proposes to use, also, "The Will to Please."

Interchange Car Inspectors Confer

On January 19 and 20, fifteen chief inspectors, representing car interchange bureaus at widely separated points in the

Summary for Steam Railroad Repair Shops: 1925 and 1923

SUBJECT TO CORRECTION	1925		1923	Per cent of increase (+) or decrease (-)
	1925	1923		
Number of shops.....	1,842	1,801		+2.3
Wage earners (average number)*.....	425,234	488,505		-13.0
Maximum month.....	Feb. 438,308	June 500,604		
Minimum month.....	Aug. 416,961	Dec. 458,039		
Per cent of maximum.....	95.1	91.5		
Wages.....	\$619,834,690	\$723,742,000		-14.4
Cost of materials (including fuel, electric power, and shop supplies).....	\$533,908,000	\$599,377,000		-10.9
Value of work done.....	\$1,248,867,000	\$1,433,680,000		-12.9
Value added by manufacture†.....	\$714,959,000	\$834,303,000		-14.3

*Not including salaried employees.

†Value of work done less cost of materials.

DETAILED STATISTICS

	1925		1923	Per cent of increase (+) or decrease (-)
	1925	1923		
Total value of work or products.....	\$1,248,867,000	\$1,433,680,000		-12.9
Motive power and machinery departments.....	\$622,345,000	\$720,295,000		-13.6
New construction.....	4,061,000	6,322,000		-35.8
Repairs.....	469,036,000	555,775,000		-15.6
Work for other corporations.....	10,258,000	13,810,000		-25.7
All other work or products.....	138,990,000	144,388,000		-3.7
Car departments.....	540,753,000	628,463,000		-14.0
New construction.....	6,908,000	15,704,000		-56.0
Repairs.....	451,814,000	504,166,000		-10.4
Work for other corporations.....	19,104,000	24,355,000		-21.6
All other work or products.....	62,927,000	84,238,000		-25.3
Bridge and building departments (shop work only).....	5,316,000	6,960,000		-23.6
Repairs and renewals.....	4,774,000	5,783,000		-17.4
Work for other corporations.....	60,000	77,000		-22.1
All other work or products.....	482,000	1,100,000		-56.1
All other work or products, not reported in detail....	86,453,000	77,962,000		+3.2

Central of Georgia Efficiency Meeting

The officers and employees of the Central of Georgia held their 15th annual efficiency meeting at Macon on January 18 and 19; two full days of discussion and a band concert on Wednesday evening.

The heads of different departments addressed the gathering on subjects connected with their respective activities. G. L. Candler, assistant general manager, presided, and the first general address was made by F. J. Robertson, general passenger agent. Other speakers were W. Mc. N. Knapp, general freight agent; William H. Sadler, Jr., counsel of the western division; J. D. McCartney, assistant to the president; Dr. Craig Barrow, chief surgeon; A. C. Mann, vice-president; J. F. Jackson, general agricultural agent; W. B. McKinstry, comptroller, and A. R. Lawton. J. O. Marshall of the American Railway Association, T. N. Cook of the Ocean Steamship Company and C. W. Evarts of the Bureau of Explosives also spoke. President J. J. Pelley spoke briefly at the meeting in the evening.

Silver cups and other trophies were awarded, on the records of the past year, to M. B. Smith, superintendent of the Macon-Atlanta division; F. L. Russell, agent at Atlanta, and J. H. Randall, agent

United States, held a meeting at Chicago for the purpose of considering mutual problems and deciding how the bureaus can best work together. The meeting was presided over by T. J. O'Donnell, chief interchange inspector, Buffalo, N. Y., and about one-half of all the chief interchange inspectors in the country were present personally or sent representatives. It was decided not to organize an association, but to confine activities to the holding of two informal meetings each year, the first as soon as possible after the issuance of the new interchange rules effective the first of the year, and the second, during the early part of March for the purpose of recommending changes to be considered by the Arbitration committee in preparing its report for the June convention of the American Railway Association, Mechanical division. It was agreed that attendance at the meetings should be confined to chief interchange inspectors and their assistants, except that the chairman may invite others to present information bearing on the work. In view of the many rules and regulations under which car interchange bureaus work, it is not surprising that numerous divergent opinions develop between the chief interchange inspectors which lead eventually to conflicting decisions. It is anticipated that these differences in opinion can be largely ironed out at the proposed meetings, and

that all inspectors will be governed by rules unanimously agreed upon, while all questions not unanimously agreed to will be referred to higher authorities for decision. The chief interchange inspectors do not propose to withdraw their support from the Railway Car Department Officers' Association, formerly known as the Chief Interchange Car Inspectors' and Car Foremen's Association of America, but feel that these meetings for the informal and exclusive consideration of car interchange bureau problems will be helpful.

John F. Stevens Elected A. S. C. E. President

John F. Stevens, consulting engineer and for many years railway engineer and railroad officer, was elected president of the American Society of Civil Engineers on January 19. George J. Ray, chief engineer of the Delaware, Lackawanna & Western, was chosen as director of District No. 1, and Con M. Buck, division engineer of the Atchison, Topeka & Santa Fe at Topeka, Kan., was chosen as director of District No. 14.

While Mr. Stevens is probably best known for his long service as a railway officer he has also earned distinction for his work as chief engineer of the Panama Canal and chairman of the Isthmian Canal Commission and as chairman of the Amer-



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J. F. Stevens

ican Railway Mission to Russia. His service to the Great Northern in locating the crossing of the continental divide through Marias Pass as well as his work as chief engineer of that property has been given permanent recognition by the erection of a statue at Summit, Mont., which was unveiled on July 21, 1925.

Studies made by Mr. Stevens, in Siberia from 1917 to 1923, while chairman of the mission to Russia and president of the Inter-Allied Technical board, resulted in recommendations, to the Kerensky government, of methods for increasing the efficiency of the Trans-Siberian railway between Kola Bay and Vladivostok, 5,500 miles. On the completion of this commission he was awarded honors by the governments of the United States, France, China, Czechoslovakia and Japan—participants in the membership of the technical board.

Like many other railway engineers who were born in the East near the middle of

the last century, Mr. Stevens obtained his first practical experience in the West. After serving in minor engineering positions on half a dozen railroads his work as a railroad builder led to his advancement to chief engineer of the Great Northern, a position he occupied from 1899 to 1903. Among other railroad positions which he held subsequently were those of chief engineer and later vice-president of the Chicago, Rock Island & Pacific, vice-president of the New York, New Haven & Hartford, in charge of operation, and president of the Spokane, Portland & Seattle and the Oregon Trunk. Since 1923 he has devoted his time to a private engineering practice at New York. Mr. Stevens is an honorary member of the A. S. C. E.

Woods Appointment Rejected by Senate

By a vote of 49 to 28 the Senate on January 24 rejected the President's appointment of Cyrus E. Woods as a member of the Interstate Commerce Commission. The vote was taken after three afternoon sessions of lively debate in executive session, first on whether the nomination should be considered in open session and then on the question of confirmation itself. It is understood that only the most "regular" of the Republicans voted for confirmation, while the vote against Mr. Woods was made up of most of the Democrats and Progressives and the Republicans from the states of the southern coal district, which is opposed to Pennsylvania in the lake cargo coal rate case pending before the Interstate Commerce Commission. The principal fight against confirmation of Mr. Woods had been led by the Senators from those states, who criticized the appointment as evidence of an effort to "pack" the commission in favor of the Pennsylvania coal interests, although Mr. Woods had said that he would not participate in the rate case if appointed. Many of the Democratic and Progressive votes were influenced by the fact that Mr. Woods is a large holder of railroad and industrial securities and by his former connections with the Pennsylvania Railroad and the Pittsburgh Coal Company.

The principal speakers against Mr. Woods were Senators Goff and Neely of West Virginia and Senator McKellar of Tennessee, while it is understood that he was supported by Senators Reed and Pepper of Pennsylvania and Fess and Willis of Ohio. Senator Reed, who had obtained the appointment from the President, said afterward that he would make no effort to urge a recess appointment for Mr. Woods.

The vote against Mr. Woods represents one of the most decisive defeats the President has experienced in controversies with the Senate. Debate was begun in executive session on January 21 and a resolution proposing an "open executive session" was at once introduced by Senator Neely. It was adopted by a vote of 48 to 31, but Senator Reed called attention to a rule requiring a two-thirds vote in such a procedure. Vice-President Dawes ruled in favor of this interpretation and Senator Neely appealed from the decision, but it was sustained by a vote of 45 to 32.

Traffic

The Southwest Shippers' Advisory Board will hold its fourteenth regular meeting at the Gunter hotel, San Antonio, Texas, on February 4.

The annual rivers and harbors bill, providing for waterway improvement projects to the amount of \$71,871,900, has been passed by both the Senate and the House and was signed by the President on January 21. The money for the work will be appropriated at the next session of Congress.

The Chicago, Milwaukee & St. Paul, the Union Pacific and the Southern Pacific have this week moved a trainload of 16 cars of candy from Chicago to Los Angeles, Cal. The shipment, weighing 600 tons, left Chicago on January 22 and arrived in Ogden, Utah, at 6 a. m. on January 27.

The Northwest Airways, Inc., is planning to put three new airplane lines into operation in the spring, including one from the Twin Cities to Duluth, Minn., and Superior, Wis., another from the Twin Cities to Fargo, N. D., and the third from Milwaukee, Wis., through Ashland and Appleton to Green Bay.

The I. C. C. hearing on the application of the western carriers for a readjustment of freight rates, Docket 17,000 ex parte, 87, Sub 1 was opened at Omaha, Neb., on January 25, before Commissioner Frank McManamy, Assistant Chief Examiner W. H. Wagner and Examiners P. C. Paulson and W. J. Koebel, with the presentation of testimony by the railroads.

Declaring that a serious depression now exists and for five years past has existed in the deciduous fruit industry of California, the California Growers' & Shippers' Protective League has filed a complaint with the Interstate Commerce Commission attacking the present freight rates on deciduous fruit, other than apples, from California to eastern points. Complainant suggests a rate of \$1.44 per 100 lb. in place of the present rates of \$1.62 and \$1.73.

The Florida exposition, which is to traverse the country during February and March, visiting numerous northern cities, has been made ready to begin its journey from Jacksonville on Monday, January 31. There are three trains the three to go in different directions. The exhibition contains a great variety of fruits and other vegetable products of Florida and also manufactured articles, and information about the hotels and varied resorts. In New York City, the exhibition train is to be stationed at Seventy-second street and Riverside drive.

Senate Bill No. 2616, authorizing railroads to transport any blind person accompanied by a guide for one fare for both, was ordered favorably reported by the House committee on interstate and foreign

commerce on January 26. A hearing on the bill was held by a sub-committee on January 24 at which representatives of the American Foundation for the Blind, the Blind Veterans of the World War and Senator Schall of Minnesota appeared in support of the bill. Alfred P. Thom, Jr., general solicitor of the Association of Railway Executives, told the committee that if the bill is passed it would probably cause complication in the form of requests from other classes of disabled persons. The bill is a permissive one.

The Interstate Commerce Commission has found not justified increases in the refrigeration charges on vegetables, except cabbages and tomatoes, in carloads, from points in Louisiana and Mississippi to destinations in all other states and in Canada, which were proposed by the railroads and suspended on protests by the Mississippi Railroad Commission, the American Fruit & Vegetable Shippers' Association, and others. The proposed schedules would effect increases of \$10 per car from all points in Mississippi and from \$5 to \$10 a car from points in Louisiana. The railroads sought to justify them by studies showing the costs of the refrigeration services, but the commission says that the showing is "not persuasive" and that "the cost may exceed the aggregate charge, but they have not proved it."

Preliminary Hearing on Western Grain Rates

A preliminary hearing before representatives of the Interstate Commerce Commission was held at Kansas City on January 20 to decide a method of procedure to be followed in a series of freight rate investigations on grain and grain products in western territory. The commission desires to consolidate all pending grain rate cases. The hearing will be subject to the provisions of the Hoch-Smith resolution which directs the commission to investigate all rates on all commodities, and to reduce rates on agricultural products as low as lawfully possible.

Cargo Shipped Through the Panama Canal in Calendar Year 1926 Establishes New Record

The total quantity of cargo shipped through the Panama Canal in the calendar year 1926 was 27,586,051 long tons. This was an increase of 16.4 per cent over the cargo tonnage for the preceding calendar year and was the largest for any 12-month period since the opening of the canal to traffic. The previous high record was 26,994,710 tons, in the fiscal year 1924. The above cargo was carried by vessels making 5,420 transits and paying \$23,901,540.04 in tolls, with a Panama Canal net tonnage of 25,836,241.

Freight Container Bureau

Edward Dahill, Jr., chief engineer of the freight container bureau, A. R. A., 30 Vesey street, New York City, has issued Bulletins 3, 5, 6 and 7, containing information for freight agents, claim agents and all who handle furni-

ture and other things which are transported in crates. The bulletins are illustrated with photographs. Bulletin No. 3 tells how to bundle and tie chairs when not crated. No. 5, deals with crates for parlor heaters; No. 7, an economical method of packing heaters; and No. 6 gives information about all kinds of crating with illustrations describing the fundamental principles of economical practice.

Mail Pay Rates for Short Lines Increased

The Interstate Commerce Commission has issued a decision prescribing increases in the rates of mail pay to be received by 12 western "short-line" railroads, corresponding to the increases previously awarded in the case of 23 short lines in the same general territory. The roads whose rates are now increased are the Arcata & Mad River; Bullfrog Goldfield; Great Western (Colorado); Magma Arizona; Midland Terminal; Montana, Wyoming & Southern; Nevada-California-Oregon; San Joaquin & Eastern; Virginia & Truckee; Utah; Trona Railway and Eureka-Nevada. The commission found, however, that the rates received by the Amador Central; Mount Hood; New Mexico Central; Tonopah & Tidewater, and Deep Creek are fair and reasonable and that those received by the Arizona Southern; Central of Oregon; Death Valley Railroad and Holton Inter-Urban have not been shown to be unreasonable.

Three Railroads Operate Special Seed Train

The Northern Pacific, the Great Northern and the Minneapolis, St. Paul & Sault Ste. Marie, in conjunction with the United States Department of Agriculture, are operating a "Better Seed Special" on a six weeks' tour of Minnesota and North Dakota. Stops will be made at 106 towns in the two states where the train will be on exhibition and programs will be presented. The agricultural colleges of North Dakota and Minnesota will be in charge in their respective states and the Northwest Smut Prevention Committee, representing commercial interests and farm magazines throughout the northwest, will also co-operate.

The railways are jointly furnishing the train equipment and are operating the special without revenue as their contribution toward a program of putting into the ground in the spring of 1927, clean, disease-free, high quality seeds of approved varieties. Exhibits and programs will deal not only with the small grain crops, but will include corn, potatoes and grass.

In Minnesota four days will be spent at Northern Pacific points, five days along the Great Northern and five days along the Minneapolis, St. Paul & Sault Ste. Marie in Minnesota. In North Dakota the first meeting will be held on February 10 at Hillsboro. Six days will be spent on the Great Northern, eight days on the Northern Pacific and seven days on the Soo Line with the concluding meeting scheduled for March 5.

Foreign

Swedes to Build Railways in Turkey

Swedish interests have reached an agreement with the Turkish government calling for the construction of approximately 680 miles of railroad, and the manufacture of 100 locomotives and 1,500 freight cars. The new lines to be built, it is said, will open up large coal fields and timber tracts.

South America to Spend \$100,000,000 on Railway Construction

Approximately \$100,000,000 will be spent in South America on railway construction this year, according to advices to the New York Evening Post. The Chilean government is reported to be negotiating a \$40,000,000 loan in the New York market for extension of electrification, and the Bolivian government has virtually closed with other New York financial interests for a \$15,000,000 loan for railroad construction. A New York loan of \$10,000,000 will be advanced for railroad construction in Peru. Argentina is reported to have authorized the expenditure of \$30,000,000 for improvements on the State Railways.

Burma Railways Prosper

At the annual meeting of the Burma Railways in London on December 14, Robert Miller, its chairman, said that the year 1925-26 was the most prosperous the company had ever experienced. As a result of two years of excellent harvest the gross earnings rose to 440 lacs of rupees (\$21,406,000 at par of exchange, the lac being 100,000 and the rupee worth 48.65 cents at par)—an increase of 55 lacs over those of the previous year—itsself the highest on record. The year's satisfactory results were mainly due to freight traffic, on which they earned 275 lacs, against 230 lacs. Expenses had increased by 9 per cent, a not excessive amount considering the important increase in the earnings, and that the expenses last year were abnormally low. The net earnings amounted to Rs.196 lacs, against Rs.160.6 lacs—an increase of 22 per cent. It was proposed to pay a dividend of 9½ per cent in addition to the guaranteed interest of 2½ per cent, making in all 12 per cent for the year, of which the shareholders received 4¾ per cent as interim dividend on July 1 last. The board further proposed adding £65,000 to the reserve fund, bringing it up to £345,000, or 11½ per cent, of the company's ordinary capital, and carrying forward £33,756—about the same sum as last year.

The Burma Railways had now reached a stage when the main line, owing to the traffic poured on it by its increasing number of branches and to its own expanding traffic, required re-equipment in nearly every direction beyond what was necessary in the earlier years of its life.

As regarded new construction, they had a large prospective program before them of lines financed by the government of India to be worked by the company.

He feared that he could not give a hopeful account of the prospects of the current year, but the harvests were likely to be good and the earnings in the latter part of the 12 months should be as favorable as they were during the year under review.

Rate Increase in Britain

The increase in freight rates in Great Britain, as chiefly noted in the *Railway Age* of January 22, consists of an alteration of the rate basis from 50 per cent above the rates of January 14, 1920, to 60 per cent above this basis. The changes were authorized by the Railway Rates Tribunal in order to bring the roads up to a standard gross return of £195,632,983, allocated as follows:

L. N. E.	£61,038,766
L. M. S.	79,457,643
G. W.	31,965,893
S. R.	23,170,681

The Tribunal authorized as standard the prevailing fares in passenger service viz. 2½d. per mile first class and 1½d. per mile third class, together with the commutation rates which go with these single trip fares. On the other hand, the Tribunal ordered a lower rate than that now prevailing for workmen's fares.

Miscellaneous

The Department of Commerce has received the following reports from its agents in various parts of the world:

Russia has placed a \$1,500,000 order for railway rolling stock with local industries, following miscellaneous orders during the last two months exceeding \$5,000,000, according to a cable received from Elbert Baldwin, commercial attaché at Prague.

Railway activity in Belgium continues extraordinary with record car loadings for November—amounting to 511,000. Net earnings were largest in history. Passenger rates will increase 10 per cent for January 15, 1927, making freight and passenger rates 35 per cent since June but are still only equal to prewar.

Safety measures are being adopted on the New Zealand Railways on account of higher train speeds. First, electrification within two years of the illumination of express train coaches, second, increase of elevation of the outside curve rails to meet the increase in weight and speed of equipment, and third, legislation has been secured making it a penal act to in any way furnish a railway employee with intoxicants during duty.

New double track service between Lima and Callao on the Central Railway of Peru was inaugurated on November 25. This service reduces the time for passenger trains by six minutes from Lima to Callao and five minutes from Callao to Lima. There were also put into public service new passenger coaches built in the local factory of Guadalupe and constructed of wood from the Peruvian "montana."

Equipment and Supplies

Locomotives

THE HUNTINGTON & BROAD TOP has ordered two consolidation type locomotives from the Baldwin Locomotive Works.

Freight Cars

THE NORTHERN PACIFIC is inquiring for 200 ballast cars.

THE ATLANTIC COAST LINE is inquiring for 50 steel underframes.

SWIFT & Co., Chicago, is inquiring for 300 refrigerator cars and from 100 to 300 underframes.

THE NEVADA CONSOLIDATED COPPER COMPANY is inquiring for 20 Ingoldsby ore cars of 60 tons' capacity.

THE SOUTHERN PACIFIC has revived an inquiry for 500 sets of steel underframes and superstructures for box cars.

THE BURLINGTON REFRIGERATOR EXPRESS has ordered 200 steel underframes from the Ryan Car Company in addition to the 200 placed with the same builder and reported in the *Railway Age* of January 8.

THE CHICAGO & NORTH WESTERN is inquiring for 500 underframes and superstructure material for box cars. This company is inquiring also for 500 hopper cars as was reported in the *Railway Age* of January 22.

THE CHICAGO, BURLINGTON & QUINCY will build 1,000 gondola cars of 50 tons' capacity in its own shops. This company is inquiring for 200 ballast cars for its own line, and 100 ballast cars for the Colorado & Southern of 50 tons capacity. In addition, the company is inquiring for 1,000 box cars of 40 tons' capacity, as was reported in the *Railway Age* of January 8.

THE BALTIMORE & OHIO has ordered 500 box cars from the American Car & Foundry Company and 500 box cars from the Pressed Steel Car Company. Inquiry for this equipment was reported in the *Railway Age* of December 11. This company has also ordered from the Pressed Steel Car Company 100 underframes and superstructures for caboose cars to be built in the Baltimore & Ohio shops. Inquiry for this equipment was reported in the *Railway Age* of January 8.

Passenger Cars

THE CHICAGO, AURORA & ELGIN has ordered 15 motor-equipped passenger cars from the Cincinnati Car Company.

THE CHICAGO, SOUTH SHORE & SOUTH BEND has ordered 10 motor cars and 10 trailers from the Pullman Car & Manufacturing Corporation. Inquiry for this

equipment was reported in the *Railway Age* of December 11.

THE CHICAGO & NORTH WESTERN has ordered 40 suburban cars from the Pullman Car & Manufacturing Corporation; 40 suburban cars from the Standard Steel Car Company and 20 suburban and 20 combination passenger and baggage cars from the American Car & Foundry Company. Inquiry for this equipment was reported in the *Railway Age* of December 25.

Machinery and Tools

THE NORFOLK & WESTERN has ordered two 10-ton overhead electric cranes from the Whiting Corporation.

THE ATCHISON, TOPEKA & SANTA FE is inquiring for one drill press and one motor-driven tool grinder.

THE CLEVELAND, CINCINNATI, CHICAGO & ST. LOUIS has ordered a double-end punch and shear with 36-in. throats, from the Niles-Bement-Pond Company.

THE NEW YORK CENTRAL has ordered three 24-in. vertical drill presses, a floor grinder and a 44-in. vertical boring mill, from the Niles-Bement-Pond Company.

Miscellaneous

THE ROYAL STATE RAILWAYS OF SIAM will receive bids at the office of the Administration of the Royal State Railways of Siam, Bangkok, Siam, until 14 o'clock, April 15, for the supply of carriage and wagon buffers with side chains, B. E. 2470. Specifications, drawings, etc., may be obtained from C. P. Sandberg, 100 Broadway, New York, upon payment of \$4.00 a set.

Signaling

THE PENNSYLVANIA has ordered from the Union Switch & Signal Company, an electro-mechanical interlocking for Broad Acre, Ohio, the machine to have 21 working levers; 13 electric and eight mechanical. Also material for a similar installation at "BA," west of Jewett, Ohio, the machine to have 15 working levers, eight electric and seven mechanical.

A. T. C. on the Southern

The contracts recently made by the Southern Railway with the General Railway Signal Company for automatic signaling and automatic train control include the following items:

Automatic visual signals, with alternating current, and intermittent inductive automatic train control, from Salisbury, N. C., west to Asheville, N. C., 141 miles; 250 inductors, 80 locomotive equipments for A. T. C. between Asheville, N. C., and Knoxville, Tenn., 129 miles; automatic train control from Ooltewah, Tenn., to Macon, Ga., 225 miles. On the 141 miles and the 225 miles, the roadside material is to be installed by the signal company and the locomotive equipments by the railroad company.

Supply Trade

Edward H. Mattingley, formerly representative of the Chicago-Cleveland Car Roofing Company, Chicago, has been appointed representative of the **Bradford Corporation**, Chicago.

Harry E. Miller, assistant works manager of the Newark, N. J., plant of the **Westinghouse Electric & Manufacturing Company**, has been promoted to works manager of the same plant.

C. E. McGregor, formerly representative of the Republic Flow Meters Company, Chicago, has been appointed representative of the **Brown Instrument Company**, Philadelphia, Pa., with headquarters at Chicago.

John T. Carroll, general superintendent motive power and equipment of the Baltimore & Ohio, has resigned and has entered the railway supply business with office at 203 Citizens National Bank building, Baltimore, Md.

Simeon Hodgkin, formerly division engineer of the Richmond division of the Pennsylvania Railroad, with headquarters at Richmond, Ind., has been appointed vice-president of the **Hayes Track Appliance Company**, Richmond, Ind.

Henry F. Gilg, formerly sales manager of the Penn Iron & Steel Company, Pittsburgh, Pa., from 1916 to 1926, has been appointed general agent of railroad sales of the **Atlas Steel Corporation**, Dunkirk, N. Y., with headquarters at Pittsburgh.

The **Magor Car Corporation**, 30 Church street, New York, has opened an office at 133 West Washington street, Chicago, to handle railway sales in Illinois, Michigan and Minnesota, the office having been placed in charge of **W. P. Meigs**.

The **Ames Shovel & Tool Company** has appointed **N. E. Brooks**, representative in the railway sales division of the **Oliver Ames & Sons Corporation**. Mr. Brooks is a graduate engineer of Massachusetts Institute of Technology, and has served for fifteen years in railway sales work. His headquarters are at 41 Park Row, New York City.

Edwin Besuden has joined the sales organization of the **National Railway Appliance Company** as a special representative, with headquarters at the main office, New York City. Mr. Besuden was for many years sales manager of the **Jewett Car Company**, and later served as manager of the railway department of the **Chicago Varnish Company**, in the Eastern district.

On January 1, the Sharon, Pa., tank car plant and the Beaumont, Texas, structural steel fabricating plant of the **Pennsylvania Car Company** were taken over by the **Petroleum Iron Works**

Company, Sharon, Pa. These two plants will be known and operated as the Pennsylvania tank car department and the structural steel department of the **Petroleum Iron Works Company**.

C. O. Jones, sales manager of the power transformer section of the **General Electric Company**, Schenectady, N. Y., for many years, has been appointed assistant to the manager of the transformer division of the company. **L. L. Biche**, assistant sales manager of the power transformer section of the General Electric Company since 1924, has been appointed sales manager of the power transformer section.

Joseph H. Young, at one time president of the Denver & Rio Grande Western, the Norfolk Southern and the Rio Grande Southern and recently a member of the Western Train Service Board of Adjustment, has been appointed assistant vice-president of the **Union Switch & Signal Company**, with headquarters at Chicago, effective February 1. He was born on January 17, 1864, at Salt Lake City, Utah, and was educated at the University of Utah. He entered railway service in 1882 as an office boy and warehouseman on the Utah Central



J. H. Young

at Sandy Station, Utah. During the following year he was agent and operator at various stations and a bill clerk at the Salt Lake station. From 1883 to 1886 he was a ticket clerk and train agent for the Union Pacific at Ogden, Utah. In the latter year he was appointed traveling passenger agent of the Chicago & North Western at Salt Lake City, which position he held until 1889, when he was appointed general agent of the Salt Lake & Eastern, with headquarters at Salt Lake City. Later he was appointed general superintendent of the Utah Central, which position he held until 1891, when he was appointed superintendent of the Utah division of the Union Pacific, now a part of the Oregon Short Line unit of that sys-

tem. From August 1, 1902, to December 1, 1904, he served as general superintendent of the Rio Grande Western and from the latter date to December 11, 1905, he was general superintendent of the Colorado & Southern. On this date he was promoted to general manager, which position he held until May 1, 1907, when he resigned to become general superintendent of the St. Louis-San Francisco. On October 1, 1907, he entered the employ of the Southern Pacific as general superintendent, which position he held until May 1, 1910, when he was elected president of the Alaska Steamship Company, the Northwestern Steamship Company and the North Coast Lighterage Company and vice-president of the Copper River & Northwestern. He held these positions until May 15, 1912, when he became president of the Spokane, Portland & Seattle, the Oregon Trunk, the Pacific & Eastern, the Spokane & Inland Empire, the Oregon Electric, the United Railways and the Dalles, Portland & Astoria Navigation Company. On May 15, 1914, he was elected president of the Norfolk-Southern, which position he held until May 18, 1918, when he was appointed federal manager of the Virginian, the Norfolk Southern, the Carolina and the Kinston Carolina. He held this position until January 15, 1919, when he was appointed senior assistant director, Division of Operation of the United States Railroad Administration at Washington, D. C. After the termination of government control he became president of the Norfolk Southern, which position he held until August 1, 1921, when he was elected president of the Denver & Rio Grande Western. When the road went into receivership in August, 1922, he was appointed receiver, which position he held until 1923, when he was elected president of the Rio Grande Southern. In November, 1924, he resigned from the latter position and in May, 1925, he became a member of the Western Train Service Board of Adjustment, which position he has held until his recent appointment.

Obituary

Anson Wood Burchard, vice-chairman of the board of directors and chairman of the executive committee of the General Electric Company and chairman of the board of directors of the International General Electric Company, died on January 22 in New York City. Mr. Burchard was born in Hoosick Falls, N. Y., on April 21, 1865. He graduated from Stevens Institute of Technology in 1885 with the degree of mechanical engineer. In 1902 he joined the organization of the General Electric Company and until 1904 was controller, with headquarters at Schenectady. In 1904 he was appointed assistant to the president; in 1912 he was elected a vice-president, and in 1917 was elected a member of the board of directors. In May, 1922, Mr. Burchard was elected vice-chairman of the board, and in June of the same year he was elected president and chairman of the

board of directors of the International General Electrical Company. About a year ago he was relieved of the duties of president, but continued as chairman



A. W. Burchard

of the board. He was director of several utility and electrical companies.

Frederick Hackmann, president of the Hackman Railway Supply Company, Chicago, died in that city on January 17 after a severe illness following a long period of poor health. Mr. Hackmann was born in Schleswig-Holstein, Germany, in 1872, and was educated at the University of Schleswig. He came to America at the age of 18 and entered railway employment as a track laborer, following which he was employed for a number of years in railway track maintenance. Through a natural bent for the development of mechanical appliances, his interests led him into the de-



Frederick Hackmann

velopment field and he was engaged for many years in the invention and perfection of various appliances used by the railroads and for a period of about three years was in the personal employ of James J. Hill. During the World War he was in the employ of the government on special investigations concerning the casting of shell casings. Following the close of the war he turned his attention to track appliances with

the result that he developed the Idol track liner, the first of a considerable number of appliances designed for lining track which are now in general use. For the purpose of marketing his track liner and other track appliances he organized the Hackmann Railway Supply Company in 1922, of which he was president until the time of his death.

Stanley Clague, one of the founders and later managing director of the Audit Bureau of Circulations, died in Chicago on January 19. He was born on the Isle of Man, off the coast of England on April 16, 1872, and came to the United States in 1892. His first position was that of secretary to the president of Harvard University and for a number of years he was employed as head of the advertising service department of the Curtis Publishing Company, Philadelphia. In 1908 he organized his



Stanley Clague

own advertising agency in Chicago and in March, 1915, consolidated it with Taylor, Critchfield & Company, and became vice-president of the new company known as the Taylor-Critchfield-Clague Advertising Agency. In 1917 he resigned from this position to become managing director of the Audit Bureau of Circulation which he helped to organize in 1914 and during the past 10 years devoted his entire time to the work of that organization.

Trade Publications

STEAM TURBO-GENERATORS.—The American Brown Boveri Electric Corporation, Camden, N. J., has issued a 48-page, 9-in. by 12-in. booklet which describes and illustrates steam turbine driven electric generators for stationary plants and for marine purposes. Particular attention is given to details of design and construction of both the turbine and the electric generator. The booklet is known as descriptive circular No. 100 and bears the title "Steam Turbo-Generators."

THE SOUTHWEST SHIPPERS Advisory Board will hold its fourteenth regular meeting at the Gunther Hotel, San Antonio, Texas, on Friday, February 4.

Construction

BALTIMORE & OHIO.—This road has awarded a contract to the Empire Construction Company of Baltimore, for grading and masonry work on second track from Dickerson to Point of Rocks, Md., to cost about \$200,000.

BOSTON & MAINE.—The construction of a new fruit auction terminal at Rutherford avenue, Boston, will be started shortly by the Boston & Maine. Plans call for a modern fireproof structure 600 ft. long and 90 ft. wide to cost about \$350,000, and to be completed about July 1.

CHARTIERS SOUTHERN.—This road has been authorized to build an extension 7.6 miles long from its present terminus near Mather to Waynesburg, all in Greene County, Pa. The purpose of the extension is to serve the borough of Waynesburg and to open a field of high-grade coal underlying the region to be traversed. The estimated cost of the line is about \$1,742,000.

CHESAPEAKE & OHIO.—This company has closed bids for the construction of a water station at Griffith, Ind.

FT. WORTH & DENVER SOUTH PLAINS.—Contracts for the construction of a line between Estelline, Tex., and Plainview, 202 miles, have been awarded to Peterson, Shirley & Gunther, Omaha, Neb., and to Sprague Nicely, Beatrice, Neb. Construction of this extension, which joins the Ft. Worth & Denver City at Estelline and includes branch lines to Silverton, Tex., and Lubbock, is expected to cost about \$6,300,000.

GRAND TRUNK.—Bids are being received until February 4 for the construction of a rectangular enginehouse 52 ft. by 160 ft., at Harvey, Ill.

LOUISVILLE & NASHVILLE.—The Interstate Commerce Commission has made public a proposed report by Attorney-Examiner C. E. Boles and Engineer-Examiner E. Gray recommending a finding by the commission that public convenience and necessity require the construction by this company of a new line from Chevrolet, Ky., to a point near Hagans, Va., 13.87 miles, at an estimated cost of \$5,287,000. The L. & N. had applied for authority to build the line in partial compliance with a condition imposed by the commission, at the time it authorized joint control by the Louisville & Nashville and the Atlantic Coast Line of the Carolina, Clinchfield & Ohio, that the L. & N. file application for authority to construct proposed connections between its Eastern Kentucky division and its Harlan County branch and the line of the Clinchfield and that it make either or both of such connections if found to be required by public convenience and necessity. The L. & N., however, had asked the commission to suspend the requirement as to a connection between its Eastern Kentucky division and the Clinchfield, called the McRoberts line. The examiners'

report says that the evidence is not sufficient to overcome the showing that the McRoberts connection is not required and that the record indicates that it may be entitled to relief from the condition, but that "unfortunately, that question cannot be considered in this proceeding, because it would call for a modification of the order in the Clinchfield lease case.

MISSOURI PACIFIC.—A contract for the construction of a locomotive repair shop, 112 ft. by 81 ft., at Harlingen, Texas, has been awarded to the Hubbard Construction Company, Houston, Texas. Total expenditures for repair facilities and improvements at this point are expected to approximate \$400,000.

PENNSYLVANIA.—A contract has been let by this road to Brann, Stuart Company of Philadelphia, for reconstruction of a bridge over the Delaware and Raritan Canal at New Brunswick, N. J., to cost about \$50,000. The road has let a contract to the Newhall Company of Cleveland, for construction of coaling and water facilities and additional sidings at East Rochester, Ohio, to cost about \$160,000.

PENNSYLVANIA.—This company has commenced extensive improvements at Conemaugh, Pa., the construction of which necessitates the shifting of a stretch of the Conemaugh river from its natural bed to an entirely new channel. The new facilities consist of a mechanically operated, 250-ton capacity coaling station, spanning nine tracks, with extensive trackage additions to permit the engines of 100-car freight trains to take coal and have their

fires cleaned while clear of the main tracks.

QUANAH, ACME & PACIFIC.—Surveys have been completed for the construction of a line between McBain, Tex., and Floydada.

ST. LOUIS, TROY & EASTERN.—The general contract for the construction of an elevated structural steel approach, 7,400 ft. long, to the McKinley bridge at Venice, Ill., has been let to the Fruin-Colnon Contracting Company, St. Louis, Mo. The project, which will cost approximately \$1,000,000, will enable this railroad to eliminate a number of grade crossings in reaching the McKinley bridge.

SOUTHERN.—This company, it is reported, has prepared plans for yard extensions at Durham, N. C., to cost in the neighborhood of \$100,000.

VIRGINIAN.—This road plans to increase its track storage capacity at Sewalls Point, Va., within the coming year to accommodate approximately 500 additional cars. It also expects to spend more than \$1,000,000 in improvements on other parts of this line in Virginia and West Virginia. Most of this work will be in the nature of providing additional tracks and increasing the length of passing tracks.

VIRGINIAN & WESTERN.—This company has applied to the Interstate Commerce Commission for a certificate authorizing the construction of an extension of the Guyandot river branch of the Virginian from a point near Itmann, W. Va., to a connection with the Chesapeake & Ohio at or near Gilbert, W. Va., 40.6 miles.

ested parties on the same relative basis and proportion as the allotment of the total of 50,000 shares proposed.

GEORGIA & FLORIDA.—*Bonds.*—The Interstate Commerce Commission has authorized this company to issue \$300,000 first mortgage 6 per cent bonds, series A, to be pledged with the Secretary of the Treasury as collateral security for a loan. This is in connection with the company's recent reorganization.

GREAT NORTHERN.—See Northern Pacific.

GULF & INTERSTATE OF TEXAS.—*Bonds.*—This company has applied to the Interstate Commerce Commission for authority to execute a general mortgage and to issue \$1,528,700 of general mortgage bonds to be delivered to the Atchison, Topeka & Santa Fe in satisfaction of indebtedness.

HEALDTON & SANTA FE.—*Bond.*—This company has applied to the Interstate Commerce Commission for authority to execute a first mortgage on its property and to issue a bond for \$1,100,000 at 6 per cent to the Atchison, Topeka & Santa Fe in satisfaction of indebtedness.

LOUISIANA RAILWAY & NAVIGATION COMPANY.—*Notes.*—The Interstate Commerce Commission has authorized this company to issue two-year promissory notes aggregating \$2,000,000, of which \$600,000 are to be delivered to Mrs. Sarah Edens in payment of advances and \$1,400,000 to be sold at par. The proceeds are to be used for the construction of the new lines which this company is building in Avoyelles and Pointe Coupée Parishes, La.

LOUISVILLE & NASHVILLE.—*Trackage Rights.*—The Interstate Commerce Commission has issued a certificate authorizing the Louisville & Nashville to operate under trackage rights over 4.1 miles of the line of the Alabama State Docks Commission at Mobile, Ala., and thence over 9.5 miles of the Chickasaw spur and a part of the main line of the Gulf, Mobile & Northern. The purpose of the acquisition of trackage rights is to enable the Louisville & Nashville to use a belt line around the business section of Mobile.

MILLTOWN AIR LINE.—*Abandonment.*—The Interstate Commerce Commission has issued a certificate authorizing this company to abandon its line from Milltown, Ga., to Naylor, 10 miles. This line was originally built as a logging road but has been a common carrier since 1903.

NEW YORK, NEW HAVEN & HARTFORD.—*1926 Earnings.*—A statement issued in connection with the December earnings figures shows that the New Haven in 1926 earned net income after interest and other charges of \$8,852,000, as compared with \$8,312,000 in 1925.

NORFOLK & WESTERN.—*Dividend Increase.*—Directors have declared a quarterly dividend of 2 per cent, which has the effect of placing this stock on an 8 per cent annual basis instead of 7 per cent regular dividends previously paid. In December, 1926, the company declared an extra dividend of 3 per cent, so that dividends for the year totaled 10 per cent.

Railway Finance

BALTIMORE & OHIO.—*Acquisition.*—The Interstate Commerce Commission has authorized the Baltimore & Ohio to acquire control by purchase of capital stock and by an operating contract of the Cheat Haven & Bruceton, which operates from a connection with the Baltimore & Ohio near Cheat Haven, Fayette County, Pa., up the Cheat River and across the line to West Virginia, a distance of 5.3 miles, with a branch of 1.2 miles. The road was built by the Kendall Lumber Company and about 90 per cent of its traffic is coal.

BLACK MOUNTAIN.—*Abandonment.*—The Interstate Commerce Commission has made public a proposed report by Examiner W. J. Schutrumpf recommending that commission issue a certificate authorizing this company to abandon a portion of its line in Yancey county, N. C., from the point of connection of the Bowlens Creek branch with the main line to the south end of the main line near Eskota, 11.826 miles, on condition that it be sold to any person desiring to purchase it for continued operation at a price greater than the salvage value.

BUTTE, ANACONDA & PACIFIC.—*Reimbursement Proceeding Re-Opened.*—The Interstate Commerce Commission has re-

opened the proceeding by which Division 4 on March 20, 1925, certified that \$487,116 was payable to this company by way of reimbursement for the portion of the federal control period during which it operated its own railroad. The commission says that the record shows that this company received for that period a net railway operating income and that the commission subsequently decided, in effect, that the provisions of section 204 of the transportation act are not applicable to roads which received a net railway operating income. Previously the section had been held applicable to roads which suffered a reduction in net railway operating income. The case was assigned for hearing on January 28 before C. V. Burnside, assistant director of the commission's Bureau of Finance.

DENVER & SALT LAKE.—*Stock Issue.*—This company has applied to the Interstate Commerce Commission for authority to issue 50,000 shares of no-par common stock in connection with its reorganization instead of the 32,000 shares authorized by the commission in its order. The application says that it is impracticable to redistribute the 32,000 shares among all inter-

NORTHERN PACIFIC.—Abandonment of Branch.—The Interstate Commerce Commission has issued a certificate authorizing this company to abandon a branch line extending from Iron River, Wis., to Coda, 9.78 miles. This line formerly extended from Iron River to Washburn, 33.78 miles. The part beyond Coda was abandoned in 1922.

NORTHERN PACIFIC.—Merger with Great Northern.—Following the meeting of the executives of the Northern Pacific and Great Northern held in New York on January 20 to discuss merger plans of the two properties, the following statement was issued by Charles Donnelly, president of the Northern Pacific, and Ralph Budd, president of the Great Northern:

"Today directors, officers and counsel of the two Northern companies held further conference relative to the question of effecting a unification of those companies through stock ownership and lease. The progress made was encouraging.

"It may be stated that the boards of directors of the two Northern companies are in agreement that any exchange of stocks of the two Northern companies for the stock of the new operating railway company should be on a basis of equality, a share of stock of one of the Northern companies being deemed equal in value to a share of stock of the other Northern company, and each to be exchanged for a share of stock of the new company.

"It is not yet possible to describe the exact machinery which will be adopted for carrying out the plans now under discussion, or the time when any detailed announcement can be made. As soon as these features can be settled, it is the purpose to explain the entire matter in its various aspects to the governors and state commissions of the states in which the Northern companies operate, as well as to the stockholders of those companies.

"The stockholders of the two Northern companies have long earnestly desired to effect a unification which would complete the community of interest to which the two companies are already committed by reason of their joint control of the Burlington and of the Spokane, Portland & Seattle, and it is gratifying that the plan is progressing so favorably.

"Of course no plan of unification can be put into effect until the Interstate Commerce Commission after full hearings finds that it is in the public interest."

PERE MARQUETTE.—Van Sweringens Reported to Have Control.—It was reported unofficially on Monday that the Van Sweringens brothers had acquired control of 280,000 shares of Pere Marquette stock, which means that they now own 40 per cent, as compared with the 21.8 per cent that they owned in 1925. The Pere Marquette has three issues of stock, prior preference, preferred and common, and all three have equal voting power.

PHILADELPHIA & CAMDEN FERRY COMPANY.—Partial Liquidation.—Directors of this company, a majority of the stock of which is owned by the Pennsylvania and its subsidiary, the United New Jersey Railroad & Canal Company, on December 1 declared a 5 per cent cash dividend for the

closing quarter of 1926. This makes a total of 20 per cent cash dividends paid out of the earnings of 1926. This dividend will be payable on January 10, 1927, to stockholders of record on December 31. The directors also announced that they propose to recommend to the stockholders a reduction of the par value of the capital stock from \$50 to \$40, or 20 per cent. This 20 per cent is to be paid by the distribution of part of the company's cash assets and securities. The directors will also request the stockholders for authority to make such further reductions in the par value of the capital stock, and such further distribution of the company's assets as, from time to time, in their judgment, may be essential.

In recommending this action the directors recognize that the company does not require the present amount of capital investment and assets to continue business. The company's earnings have been materially reduced through the opening of the Delaware River bridge, the loss in vehicular traffic being approximately 74 per cent, and of passenger traffic about 30 per cent. However, the ferry company has, for several years, been accumulating a surplus to meet the anticipated loss of traffic through the opening of the bridge.

ST. LOUIS-SAN FRANCISCO.—Preferred Stock Issue.—This company has applied to the Interstate Commerce Commission for authority to issue \$15,096,240 of 6½ per cent preferred stock, convertible into common stock in the ratio of ten shares of preferred to nine of common and redeemable at \$110, and also \$13,586,616 of common stock from time to time in exchange for the preferred stock. The proceeds are to be used to reimburse the company's treasury in part for capital expenditures made since 1922 and to be made. The company expects to dispose of the stock at par to its present common stockholders and Speyer & Co., and J. & W. Seligman & Co. have agreed to underwrite the issue for a commission of 3 per cent.

SOUTHERN.—Bonds.—This company has applied to the Interstate Commerce Commission for authority to issue and sell \$3,368,000 of its first consolidated mortgage 5 per cent gold bonds of 1994, to provide funds for the redemption of a like amount of debenture mortgage 5 per cent bonds of the Richmond & Danville.

WESTERN MARYLAND.—Equipment Trust.—The Interstate Commerce Commission has authorized the issuance of \$1,260,000 equipment trust certificates, series E. This issue was offered for competitive bids and six bids were received, the highest being that of Alex. Brown & Sons of Baltimore, Md., and Brown Brothers & Co. of New York, who offered a price of 97.532, giving an average annual cost to the carrier of approximately 4.906 per cent. As previously noted in these columns, the equipment consists of 20 Decapod locomotives, having a total approximate cost of \$1,671,000.

WISCONSIN CENTRAL.—Notes.—This company and the Minneapolis, St. Paul & Sault Ste. Marie have applied to the Interstate Commerce Commission for authority for an issue of \$7,500,000 of 5 per cent

secured notes of the Wisconsin Central, to be delivered to the Soo at a price which will produce 97 with accrued interest, the proceeds to be used to retire \$6,000,000 of three-year 5½ per cent notes which fall due April 15, 1927, and for improvements. Authority is also asked to pledge as security for the notes \$10,000,000 of first and refunding mortgage bonds of the Wisconsin Central.

WISCONSIN CENTRAL.—Notes.—The Interstate Commerce Commission has approved an issue of \$7,500,000 three-year 5 per cent secured notes to be sold to Dillon, Read & Co. at 97. The proceeds are to be used to retire \$6,000,000 three-year 5½ per cent notes maturing April 15, for additions and betterments and to reimburse the Soo Line for advances. The Minneapolis, St. Paul & Sault Ste. Marie has been authorized to guarantee the notes.

YORK HARBOR & BEACH.—Abandonment.—The Interstate Commerce Commission has made public a proposed report by Examiner Jameson recommending a finding authorizing the abandonment of this company's line from Kittery Junction, Me., to York Harbor.

Dividends Declared

Illinois Central Railroad—Common, \$1.75, quarterly; preferred, \$3.00, semi-annually, both payable March 1 to holders of record Feb. 4.
Philadelphia & Western—Common, \$.50, initial, payable Feb. 15 to holders of record Feb. 5.

Average Price of Stocks and Bonds

	Jan. 25	Last week	Last year
Average price of 20 representative railway stocks...	101.75	104.01	94.72
Average price of 20 representative railway bonds...	98.13	98.45	95.11

Valuation Reports

The Interstate Commerce Commission has issued final or tentative valuation reports finding values for rate-making purposes of the property owned and used for common carrier purposes, as of the respective valuation dates, which are as follows:

FINAL REPORTS		
Gulf Ports Terminal.....	\$460,000	1917
Morehead & North Fork.....	638,031	1918
New Orleans & Lower Coast	622,170	1918
Rahway Valley	5,495	1917
Red River & Gulf.....	304,949	1919
TENTATIVE REPORTS		
Detroit, Toledo & Milwaukee, (owned but not used)....	\$1,730,000	1917
Erie & Michigan Railway & Navigation Company	52,781	1917
Minnesota, Dakota & Western	650,790	1918



Central Station, Havana, Cuba

Railway Officers

Executive

Charles M. Levey, president of the Western Pacific, will on April 1 become assistant to the chairman of the board of directors and will be succeeded as president by **H. M. Adams**, hitherto vice-president in charge of traffic of the Union Pacific System. Both will have headquarters in San Francisco.

Alexander C. Shand, chief engineer of the Pennsylvania, with headquarters at Philadelphia, has been appointed assistant to the vice-president, with the same headquarters. **J. T. Wallis**, chief of motive power at Philadelphia, has been promoted to assistant vice-president-operation, with the same headquarters. **C. M. Sheaffer**, chief of transportation, with headquarters at Philadelphia, has been promoted to assistant vice-president-operation, with the same headquarters. All changes are effective February 1.

Financial, Legal and Accounting

Palmer J. Waters has been appointed auditor of the Chicago, Rock Island & Gulf, with headquarters at Fort Worth, Tex., succeeding **Henry Lucas**, who has retired under the pension rules.

R. Larmer, comptroller of the Clover Leaf district of the New York, Chicago & St. Louis, with headquarters at Toledo, Ohio, has been promoted to general auditor of the entire system, with headquarters at Cleveland, Ohio, effective February 1. On that date the office of the accounting department of the Clover Leaf district at Toledo will be combined with the general offices at Cleveland.

E. H. Boles has resigned as vice-president and general counsel of the Lehigh Valley with headquarters at New York City, and has been appointed special counsel. **E. H. Burgess**, assistant general solicitor at New York City, has been appointed general solicitor, with the same headquarters. **C. A. Major**, assistant general solicitor at New York, has been appointed assistant general counsel, with the same headquarters. **H. W. Smith** and **C. D. O'Connell**, attorneys, have been appointed assistant general solicitors, both with headquarters at New York City.

Operating

H. L. Clapper, yardmaster on the Pennsylvania at Pitcairn, Pa., has been promoted to assistant trainmaster on the Chicago Terminal division, with headquarters at Chicago.

L. K. Sorenson, trainmaster on the Chicago, Milwaukee & St. Paul at

Aberdeen, S. D., has been promoted to superintendent, with headquarters at Deer Lodge, Mont., effective February 1, succeeding **J. P. Phelan**, assigned to other duties.

John F. Alsip, trainmaster on the Tacoma division of the Northern Pacific, with headquarters at Tacoma, Wash., has been promoted to assistant superintendent, with headquarters at Staples, Minn. He has been succeeded by **William West Berry**, inspector of passenger train service.

James W. Mode, who has been promoted to superintendent on the Ft. Worth & Denver City with headquarters at Amarillo, Tex., was born on June 30, 1884, in Wise county, Tex., and graduated from the Alvord (Tex.) high school in 1900. He entered railway service on December 13, 1901, as a brakeman on the Ft. Worth & Denver City and three years later he was promoted to conductor where he remained until August 27, 1906, when he accepted similar employment on the Wichita Valley. From April 25, 1907, to July 29, 1907, he served as a conductor on the Gulf, Colorado & Santa Fe, then



James W. Mode

returning to the F. W. & D. C. as a conductor. During the world war Mr. Mode served in the army with the rank of captain. On August 17, 1919, he was promoted to trainmaster of the Wichita Falls division with headquarters at Wichita Falls, Texas, and on January 1, 1923, he was again promoted to assistant superintendent of the Amarillo division with headquarters at Amarillo. Mr. Mode was appointed acting superintendent of this division on May 1, 1926, a position he held until his promotion to superintendent on January 1.

J. F. Deasy, assistant chief of transportation of the Pennsylvania, with headquarters at Philadelphia, has been promoted to chief of freight transportation, with the same headquarters. **D. M.**

Sheaffer, manager of mail and express traffic at Philadelphia, has been promoted to chief of passenger transportation, with the same headquarters. The promotions are effective February 1.

James J. Burns, assistant superintendent of the Dakota division of the Chicago & North Western with headquarters at Huron, S. D., has been promoted to superintendent of that division, effective February 1, succeeding **F. N. Stewart**, retired. **F. W. Saxton**, trainmaster at Chadron, Neb., has been transferred to Huron and the position of assistant superintendent at that point has been abolished.

R. Armstrong, superintendent of the Manitoba district of the Canadian Pacific, with headquarters at Brandon, Man., has been transferred to the Nelson division, British Columbia district, with headquarters at Nelson, B. C., succeeding **W. O. Miller**, retired. **G. L. McCrea**, wharf agent at Vancouver, B. C., has been appointed assistant superintendent of the Vancouver Terminals, succeeding **W. P. Martin**, retired after 49 years of railway service.

Franklin Duane, who has been appointed assistant to the general superintendent of the Southern division of the Pennsylvania, with headquarters at Wilmington, Del., was born on September 1, 1862, at Trenton, N. J., and was graduated from Princeton University in 1883. He entered railway service on November 24, 1883, and until September 30, 1888, was a rodman on the Pennsylvania. From October 1, 1888, until November 30, 1894, he was assistant supervisor, and from December 1, 1894, until February 13, 1901, he was supervisor. At the latter time he was appointed assistant engineer, which position he held until April 7, 1909, when he became division engineer of the same road. On May 1, 1920, he was appointed engineer maintenance-of-way of the Southern division of the Eastern region, which position he was holding at the time of his recent appointment as assistant to the general superintendent.

Walter B. Pollock, marine manager of the New York Central, with headquarters at New York City, who has retired, was born on December 8, 1856, at Milton, Mass., and entered railway service in 1868 as a messenger in the president's office of the Old Colony (now a part of the New York, New Haven & Hartford), and from May, 1870, until August, 1871, was in the superintendent's office of the Providence & Worcester (also a part of the New Haven). From the latter date until May, 1872, he served in the freight office of the Boston & Albany at Springfield, Mass., and from May, 1872, until April, 1880, was in the accounting department of the Pennsylvania. He then served in the freight and grain elevator offices of the Pennsylvania at Jersey City, N. J., where he remained until June, 1883, at which time he became travelling auditor for the West Shore. From January to July, 1887, he was traveling auditor of the New York Central & Hudson

River, and then served as auditor of freight accounts until November, 1898. Mr. Pollock then became manager of the marine department, which position he held until August, 1918, when he became marine director, New York Harbor, Eastern and Allegheny regions, United States Railroad Administration. On March 1, 1920, he became manager of the marine department of the New York Central Railroad, which position he was holding at the time he retired. From January to June, 1907, he was also general manager of the Merchants Despatch Transportation Company, and from the latter date until January, 1921, was vice-president and general manager of the same company. Since 1909 he has also been vice-president of the Western Transit Company.

John C. Roth, general superintendent of transportation of the Great Northern with headquarters at St. Paul, Minn., has been appointed general inspector of transportation of the Chicago, Burlington & Quincy, a newly created position,



J. C. Roth

with headquarters at Chicago. He was born at St. Paul and entered railway service in 1892 on the Canadian Pacific. In 1894 he became a yard clerk on the Northern Pacific at Tacoma, Wash., where he remained in yard and train service until 1901 when he was promoted to dispatcher's clerk. Later he was advanced to assistant chief dispatcher and then to car distributor, being promoted to assistant superintendent of transportation with headquarters at Tacoma in July, 1907. In March, 1912, he was appointed superintendent of the North Yakima & Valley (now a part of the Northern Pacific) acting in addition as general agent for the Northern Pacific at North Yakima, Wash. Mr. Roth was promoted in October, 1914, to trainmaster on the Northern Pacific at Pasco, Wash., where he remained until June, 1917, when he was again promoted to assistant to the general superintendent with headquarters at Tacoma. In March, 1918, he was appointed district manager of the car service section of the United States Railroad Administration with headquarters at Portland, Ore., and during

federal control he also served as car service assistant of the Northwestern region and terminal manager of the Puget Sound Terminal district. At the end of this period he was appointed assistant director of the Bureau of Service of the Interstate Commerce Commission with headquarters at Washington, D. C. On June 1, 1922, Mr. Roth was promoted to director of the Bureau of Service where he remained until April, 1923, when he was appointed general superintendent of transportation of the Great Northern. He held the latter position until his appointment as general inspector of transportation of the Burlington.

Traffic

Herbert W. Patterson has been appointed general agent for the Missouri & North Arkansas, with headquarters at New York, succeeding **A. J. Jones**, resigned.

Ralph E. Hayward, commercial agent on the Chicago, Burlington & Quincy at Omaha, Neb., has been promoted to general agent in the freight department, with the same headquarters.

Charles W. Pfaff has been appointed general agent of the Lehigh Valley, with headquarters at Philadelphia, Pa., succeeding **C. W. Murphy**, who has been appointed special agent.

Rolla R. Mitchell, who has been promoted to freight traffic manager of the Union Pacific, with headquarters at Omaha, Neb., effective February 1, was born on October 30, 1875, at Ottawa, Kan., and was graduated from the Uni-



Rolla R. Mitchell

versity of Kansas in 1895. He entered railway service two years later as a clerk in the general freight office of the Kansas City, Pittsburg & Gulf (now a part of the Kansas City Southern). From August 1, 1898, to May 1, 1900, he was a commercial agent, with headquarters at Texarkana, Tex., being transferred on the latter date to Memphis, Tenn. In 1901 he was transferred to Shreveport, La., where he remained until 1906 when he was promoted to as-

sistant general freight agent, with headquarters at Texarkana. Mr. Mitchell was advanced to general freight agent, with headquarters at Kansas City, Mo., on November 15, 1910, and ten years later he was appointed assistant freight traffic manager of the Union Pacific with headquarters at Omaha, which position he held until his promotion to freight traffic manager.

Eugene B. Finegan, who has been promoted to freight traffic manager of the Chicago, Milwaukee & St. Paul, with headquarters at Chicago, was born at Iron Ridge, Wis., on November 16, 1880. After attending the Hudson (Wis.) High school he entered railway service in September, 1899, in the machine shop of the Chicago, St. Paul, Minneapolis & Omaha at Hudson. Later he was transferred to the office of the master car builder and in 1903 he became a stenographer and clerk in the office of the general agent on the Great Northern at St. Paul, Minn. In May, 1904, he entered the service of the Milwaukee as a stenographer and clerk



Eugene B. Finegan

in the commercial agent's office at St. Paul, being promoted to chief clerk to the assistant general freight agent in November, 1906. He then served in the same capacity for the general freight agent, the freight traffic manager and the vice-president in charge of traffic, all at Chicago, and in April, 1916, he was promoted to his first official position as chief of the tariff bureau, lines east, with the same headquarters. From February, 1917, to April 1, 1922, Mr. Finegan served as assistant general freight agent and was then promoted to general freight agent, with headquarters at Chicago. He was advanced to assistant freight traffic manager at Chicago in June, 1925, which position he held until his promotion to freight traffic manager on January 18.

G. W. Hamilton, assistant general freight agent on the Union Pacific, with headquarters at Omaha, Neb., has been promoted to assistant to the freight traffic manager, with the same headquarters, succeeding **L. T. Wilcox**, promoted.

S. M. Rankin, assistant chief of transportation of the Pennsylvania, with headquarters at Philadelphia, has been appointed manager of mail and express traffic, with the same headquarters, succeeding **D. M. Sheaffer**, promoted, effective February 1.

E. W. Soergel, general freight agent on the Chicago, Milwaukee & St. Paul with headquarters at Chicago, has been promoted to assistant to the freight traffic manager with the same headquarters. **O. T. Cull**, assistant general freight agent with headquarters at Chicago, has been promoted to general freight agent, succeeding Mr. Soergel. **J. A. Farmer**, assistant general freight agent with headquarters at Chicago, has been promoted to assistant freight traffic manager. **G. A. Moller**, chief clerk in the general freight department at Chicago, has been promoted to assistant general freight agent.

Frank W. Robinson, who has been elected vice-president in charge of traffic of the Union Pacific, effective February 1 with headquarters at Omaha, Neb., was born on May 22, 1874, at Cherryvale, Kan., and entered railway service on April 1, 1889, in the passenger department of the Union Pacific. Shortly after that time he was transferred to the accounting department and in September of the same year he became connected with the freight traffic department at Omaha. On January 1, 1906, he was promoted to chief clerk to the director of traffic at Chicago and from January 1, to August 1, 1910, he served as assistant general freight agent on the Oregon-Washington Railroad & Navigation Company with headquarters at Portland, Ore. Mr. Robinson was then promoted to general freight agent with the same headquarters, and on May 15, 1912, he was appointed assistant to the director of traffic of the Union Pacific and the Southern Pacific at Chicago. On February 20, 1913, he was appointed assistant traffic manager of the Oregon-Washington at Portland, where he remained until November 1, 1915, when he was promoted to traffic manager with the same headquarters. On March 1, 1920, Mr. Robinson was promoted to freight traffic manager of the entire Union Pacific system, which position he held until his appointment to vice-president in charge of traffic.

Mechanical

John T. Carroll, general superintendent of motive power and equipment of the Baltimore & Ohio at Baltimore, Md., has resigned to go into other business, effective January 25.

W. O. Thompson, formerly general superintendent of rolling stock of the New York Central, with headquarters at Buffalo, N. Y., has been appointed equipment assistant, with the same headquarters.

August Mueller, in addition to his duties as supervisor of automatic train control of the Chicago, Rock Island &

Pacific, has been appointed air brake instructor, with headquarters shifted from Des Moines, Iowa, to Chicago, succeeding **W. J. Hartman**, recently deceased.

F. W. Hankins, general superintendent of motive power of the Central region of the Pennsylvania, with headquarters at Pittsburgh, Pa., has been promoted to chief of motive power, with headquarters at Philadelphia, succeeding **J. T. Wallis**, promoted, effective February 1.

T. W. Coe, master mechanic on the Nickel Plate district of the New York, Chicago & St. Louis, with headquarters at Conneaut, Ohio, has been promoted to superintendent of motive power, with headquarters at Cleveland, Ohio, succeeding **W. G. Black**, who has resigned to accept a position with another company.

J. E. Gardner, electrical engineer of the Chicago, Burlington & Quincy, with headquarters at Chicago, will, effective February 1, report directly to the vice-president in charge of operation instead of to the engineer of buildings. He will have general supervision of electrical construction, installation and maintenance of electrical equipment in the mechanical department and supervision of both inspection and maintenance of electrical equipment in the operating departments, other than signal and telegraph.

Engineering, Maintenance of Way and Signaling

F. H. Cothran, formerly vice-president of the Quebec Development Company and in charge of construction on the Saguenay river projects, has been appointed chief engineer of the Piedmont & Northern, with office at Charlotte, N. C.

T. J. Skillman, chief engineer of the Long Island, with headquarters at Jamaica, N. Y., has been transferred to the Pennsylvania and advanced to the position of chief engineer, succeeding **A. C. Shand**. **E. B. Temple**, assistant chief engineer of the Eastern region of the Pennsylvania, with headquarters at Philadelphia, has been promoted to chief engineer of that region, with the same headquarters. **W. D. Wiggins**, assistant chief engineer of the Central region, with headquarters at Pittsburgh, Pa., has become chief engineer of that region, and **I. W. Geer**, assistant chief engineer of the Western region, with headquarters at Chicago, has become chief engineer of that region. All changes are effective February 1.

Purchases and Stores

A. J. Mello has been appointed purchasing agent in charge of purchases and stores, of the Pacific Fruit Express, with headquarters at San Francisco, Cal., effective February 1.

Obituary

George S. Siddons, general western agent for the Atlanta, Birmingham & Atlantic, with headquarters at St. Louis, Mo., died on January 19 at the age of 54 years.

Brent Arnold, general freight agent and superintendent of terminals of the Louisville & Nashville, with headquarters at Cincinnati, Ohio, died on January 20, at Vernondale, Ohio, a suburb of Cincinnati. He was born in 1846 at Paris, Ky., and attended Kentucky university, entering railway service in 1869 in the freight office of the Louisville, Cincinnati & Lexington (now a part of the Louisville & Nashville) at Cincinnati. Later he was advanced to chief clerk and during 1871 and 1872 he acted as station agent. Mr. Arnold until 1879 served as contracting agent as well as station agent and his title was then changed to general agent and station agent. In 1883 he was appointed general agent on the Louisville & Nashville, with headquarters at Cincinnati. On February 1, 1891, he was promoted to superintendent of terminals and general freight agent at Cincinnati, a position he held until the time of his death, after 58 years of railroad service.

Ray Francis Beaudry, superintendent of the Elgin, Joliet & Eastern, with headquarters at Joliet, Ill., who died on January 11, after 39 years of railway service, was born on February 20, 1872, at Middlebury, Vt., and began railway work at the age of 14 on the Central Vermont. In 1888 he became an express agent on the Delaware & Hudson at West Rutland, Vt., being advanced to station agent at Center Rutland, Vt., in 1890. During 1892 he served as a passenger brakeman and conductor on the New York & New England (now a part of the New York, New Haven & Hartford) and in 1893 he was appointed as a train dispatcher on the Philadelphia, Newtown & New York (now the Reading). In 1896 he was appointed a station agent on the Long Island and from 1898 to 1905 he served the Fitchburg (now a part of the Boston & Maine) at Fitchburg, Mass., successively as switchman, yard foreman and extra yardmaster and he was then advanced in turn to brakeman, conductor, train dispatcher and chief train dispatcher. Mr. Beaudry's connection with the Chicago Outer Belt line began in 1909 when he was appointed chief train dispatcher at Joliet. He was advanced to trainmaster in 1910 where he remained until 1914 when he was promoted to superintendent, holding the latter position continuously until his death.

THE DANISH STATE RAILWAYS show a deficit of 5,610,000 kroner, during the period April-September, 1926, the first half of the railways' fiscal year, total receipts having been 68,360,000 kroner and total operating expenses 73,970,000 kroner. This is somewhat less than the deficit experienced during the corresponding period of 1925.

